Structuring policy issues

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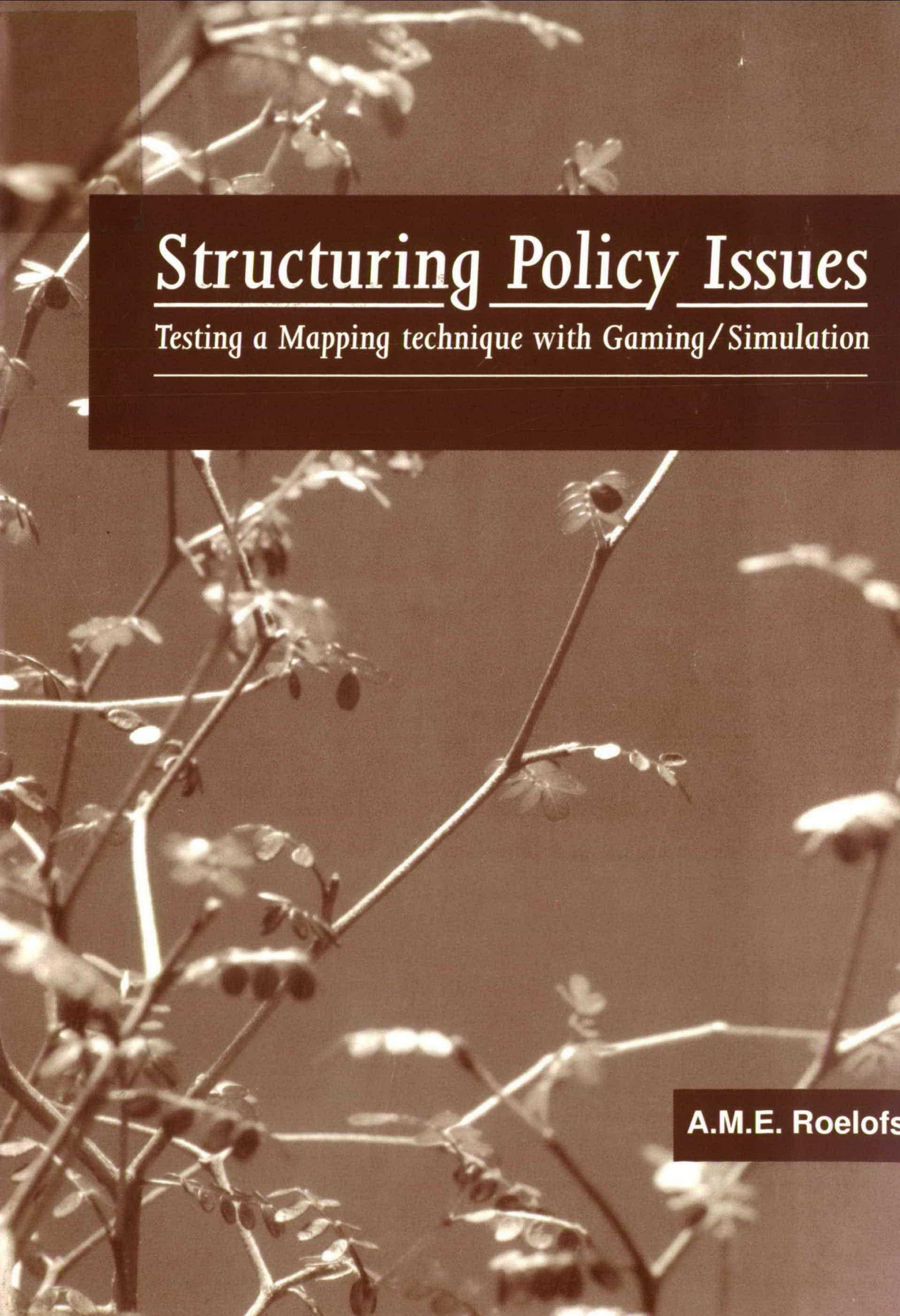

Structuring Policy Issues

Testing a Mapping technique with Gaming/Simulation

A.M.E. Roelofs

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Testing a Mapping Technique with Gaming/Simulation

Vör ó.nze pap én ó.ns mam én vör Toon die mien mee.r wieshèjd mitgegaove hèbbe dan de schôl en 't universitaire lèève die ik wél, mar zillie noojt hadde.

Structuring Policy Issues

Testing a Mapping Technique with Gaming/Simulation

Proefschrift

ter verkrijging van de graad van doctor
aan de Katholieke Universiteit Brabant,
op gezag van de rector magnificus,
prof. dr. F.A. van der Duyn Schouten,
in het openbaar te verdedigen ten overstaan van
een door het college voor promoties aangewezen commissie
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door

Anna Maria Elisabeth Roelofs

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Promotor: Prof. dr. J.L.A. Geurts

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Preface

Writing a ph-thesis resembles in some ways a medieval pilgrimage, when pilgrims were sometimes travelling years on foot to reach their destiny. Both are experiences of endurance, self-confrontation and revelation. Although a solitary experience, there have been paradoxically many which have contributed in various ways to the research and the writing of this book.

First and foremost the participants of the six municipalities which participated in the research are thanked here for their contribution. Most will undoubtedly find it very difficult to uncover in this book their own experience. Such are the wilful ways of academic discourse.

I thank Gerton Heyne who introduced me into the wondering world of gaming/simulation and the regular visitors of SPIN for providing a floor to people who work with or on gaming/simulation. Another academic debating ground was provided by Dorien Detombe the always energetic chair of the NOSMO group on approaches to complex societal problems. They are thanked for providing inspiration. Colin Eden and Fran Ackermann gave me the opportunity to read the draft of a number of chapters from their 1998 book "Making Strategy", a gesture which is much appreciated.

I was very fortunate in having a band of angels assisting me in gathering the data and which travelled with me to the various towns that participated in the research: Bregje van Bragt, Jorn Bruining, Boris Brummans, Rianne Gabrielse and Petra Habets are thanked for their hard work and the beauty of their company.

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Of the MTO-section I thank Emmanuel and Wicher for tutorials and time and Theo van der Net and Jan Scheirs who each read a chapter in which the data are presented: for I was blind and they did their best to make me see.

Rinus Verkooyen and Marcel van der Graag assisted with preparing the manuscript and figures. The secretaries Margreet, Anita and Jeanette and the librarians Ingrid and Roger have been beacons of lightening in busy times.

There were many fellow 'pilgrims' on a similar endeavour which contributed in different but not less important ways to the completion of this book. Johan Verwey was my one and only roommate in the early days. His sense of humor was a good antidote for a troubled mind. We created in some ways are own rebirthing therapy for aio's. For sharing daily lunch (walks) and so much more I thank Marloes and Iwan, and in earlier days Jeroen, Maaike and Romke. The Warande is - Marloes and I agree - the most valuable fringe benefit the KUB has to offer. Fortunately, most university staff and students prefer the company of their computer, car or some ceiling to that of trees. As a result, the trees per human ratio is still quite meditative, something which we have learned to appreciate. Thanks be also to Frank, Roel and Elly of the Policy and Organization Department for the invaluable teas and thoughts.

For all sorts of advice and support I thank Reiny and Edith who combine sense and sensibility in their very own way. Credits go to Pascale for bringing to life 'Hope and optimism inspite of the present difficulties[1]', Engelien for sensitivity and thundering laughs and Bertine for compassion and a sunlit smile.

Ton Heinen, the aio-coordinator of the Faculty is honoured for taking the concerns of aio's seriously. Where others are lost in words or in themselves, he acts. Pieter, Ineke, Tobias and Julie gave advise and moral support in how to overcome the last unexpected (and other) hurdles. It is heartwarming to see how much they rejoice over the fact that Pieters' statement "Power to the people"came true.

I am much obliged to friends and family for their patience and support. Certainly in the last 2 years I became somewhat self-absorbed by the whole undertaking. A special 'thank you' goes to my sister Jet and to Esther for caring in the days when head and heart were heavy.

Finally, the last will be the first, I thank Cisca Joldersma my supervisor and brevary during the project. The analytical thoroughness and energy with which she guided me through different time zones and landscapes, have never stopped to amaze me. If it had not been for her I would have taken up a different cause ages ago. I thank her for keeping faith.

Ellie Roelofs

1 This is the title of a lithograph of the Namibian artists, the late John Muafangejo, a copy of which cheers up my study.

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1. Introduction

1.1 Policy issues and problem structuring

The central theme of this thesis concerns complex policy issues and the role methods of problem structuring can play in facilitating policy processes which evolve around those issues. Policy makers increasingly face complex policy issues which cannot be structured straightforwardly due to their intransparency. They involve many interest organizations and groups and concern different aspects which often require specialized knowledge. The consequences of interventions directed at solving the issue are difficult to foresee. The policy issues addressed here involve a network of policy actors in which governmental or semi-governmental organizations play a dominant role. The issues are therefore situated in the public domain and have reached the agenda of public-policy makers.

Like all interventionists, policy makers - like policy analysts - have a strong inclination to pay more attention to problem solving than to problem structuring (Dunn, 1994). Insufficient attention for what characterizes the issue may result in policies that do not deliver the answer to the issue policy makers try to deal with. As a result, the wrong issue is solved. This is what Dunn (1988) has described as a type III error. However, there are signs that interest in problem structuring is growing (cf. Van de Graaf and Hoppe, 1992; Schön and Rein, 1994; Hoppe, 1989; Rosenhead, 1998; Rooze, 1999). This thesis aims to contribute to the knowledge of problem structuring of complex issues and, in particular, of the role problem-structuring methods can play in this process. A methodical approach is important, given the increasing complexity of policy issues.

1.2 Complex policy issues and societal developments

Policy issues have become more complex in the last decades of the 20th century. Society has become increasingly more difficult to comprehend. There are a number of reasons underwriting the assumption that it is increasingly difficult for policy makers to understand, interpret, and conceptualize the issues they aim to solve. One of these causes is the modernization process due to which social networks have become less hierarchical, transparent, and tight, and norms and value patterns within society have become increasingly pluralistic. Citizens of this pluralistic society have very diverse expectations and wishes regarding societal arrangements in education, arts, politics, religion, etc. As a result, the number of policies has increased dramatically since the Second World War (Douglas and Wildavsky, 1983) and, consequently, expectations have risen. Improved and more education for the majority, developments in communication technologies, and democratization processes have stimulated the emancipation of the citizen who has become a critical customer with increasingly higher expectations regarding the benefits public policy-making can bestow on him or her. For policy makers, it has become increasingly difficult to keep track of the many policies that are initiated, and which are often interdependent. Not only has the number of policies increased exponentially, the number of actors interested in a particular policy field has also grown. The institutionalization process has led to an enormous proliferation of organizations in the 20th century. Furthermore, all types of organizations are increasingly interconnected across countries. As a result, in the past fifty years, organizations have had to take greater account of external factors: the growing interdependency of organizations makes it more difficult for actors alone to determine their own organization's future policies. Technological developments have also contributed to the growing complexity of the task policy makers have to deal with. Modern technologies make it possible to give increasingly sophisticated answers to complex policy issues, but for policy makers it is, therefore, more difficult to grasp the implications of different policy options. They are more dependent on expert advice, and it is often difficult for them to foresee the consequences of their choices (cf. Bertels, 1995).

1.3 Participatory policy-making and policy networks

Since the late seventies of the previous century, there has been mounting criticism of public policy makers and analysts on the effectivity and efficiency of public policies. A call has been made for more involvement of other stakeholders in policy-making processes. Confronted with the limited ability of the state to govern complex societ-

ies, there is a growing awareness among public policy analysts, and, increasingly, also among policy makers, that governmental organizations must change their role from that of a regulator to that of a facilitator or intermediary between other organizations (cf. Deleon, 1990; Mayer, 1997; Pröpper and Steenbeek, 1998; Bongers, 2000; Heyne, 2000). Consequently, due to the changing role of the state, other organizations have to change parts as well.

In view of the growing complexity of policy issues, it seems plausible that involving policy actors in the policy-making process is an effective and efficient strategy. Through the early involvement of those who have a stake in a specific issue, the quality and quantity of the available information will improve. More importantly, participation will encourage co-responsibility and increase the policy's legitimacy (cf. Korsgaard, 1995). If policy is perceived as legitimate, people's behaviours will be more supportive of upholding that policy and, as a result, the policy may become more effective. Participatory policy-making focuses on the interactions between stakeholders in the policy-making process and aims to steer these interactions. The interactions around a policy issue between various actors or stakeholders can be viewed as a policy network. Networks can differ to the extent in which relationships have been institutionalized. Policy networks can be viewed as a new mode of governance. They can be seen as a third form of societal regulation, next to markets or hierarchies. Policy networks are horizontal arrangements marked by negotiated self-coordination. The policy network is regarded to be innovative in comparison with the central rule model in which government is the key and omnipotent actor (March, 1998: 8-9). The focus of this study are inter-organizational networks in which a governmental organization has the role of coordinator and initiator.

1.4 Problem structuring, policy-making and method

In order to assist policy makers in managing complex issues, numerous methods and techniques have been designed since the Second World War to facilitate policy-making processes. Scientific inquiry has become an important source of information for policy makers. Methods have been designed to collect expert information on particular policy choices such as a policy delphi[1]. In addition, alternative methods seek the contribution of ordinary citizens in, for example, as hearings. Consensus conferences are a method which draws upon the information provided by both experts and ordinary citizens. Furthermore, there are methods which can be tailored

1 For an elaborate account of different forms of participatory policy methods and instruments, see Mayer, 1997, Chapter 4.

to both target groups. For instance, Bongers (2000) used Group Support Systems - a computer-based method - to facilitate policy-making processes involving citizens and experts.

The methods which are discussed in this research contribute to a particular category of activities within policy-making processes, namely problem structuring. Different heuristics or techniques are used to structure complex issues. A common distinction which is made is between techniques directed at problem reduction on the one hand, and at problem expansion on the other (Volkema, 1983; Abualsamh et al., 1990). Problem reduction techniques focus on change, factoring of issues in sub-issues, or on the controllable components of issues. They have the disadvantage that they risk premature closure of options due to an inadequate structuring of the issue. Problem expansion techniques explore the boundaries of issues. Methods can involve a trajectory in which different techniques or tools are introduced. The methods which will be addressed in this study have some characteristics of both problem expansion and problem reduction. Problem-structuring methods firstly encourage divergent thinking, and stimulate convergent thinking in the course of the process. They explore the boundaries of issues but also involve different interests in that exploratory process. Hence, the methods discussed in this book can contribute to participatory policy-making. They belong to the soft Operational Research tradition and aim to develop a model of the policy makers' perceptions of the issue. These models are referred to as cognitive maps (Bougon, 1992; Eden, 1992; Hofman, 1995), mental models (Geurts and Vennix, 1989) or schemata (Rumelhart, 1980). The methods addressed in this research are Group Model Building, Compram, Soft Systems Methodology, Strategic Option Development and Analysis, and Strategic Assumption Surfacing and Testing.

1.5 Three traditions in the literature on problem structuring

Summarizing, this research can be positioned at a crossroads of three streams within the literature on policy-making and problem structuring. The first stream consists of the more practical and prescriptive works of those actively engaged in problem structuring and policy-making. These publications are often written by consultants or policy analysts working in the field who apply one or more methods of problem structuring in policy-making processes in both the public and private sector (e.g., Eden, et. al. 1979, 1983, 1998; Hickling, 1990; Phillips, 1990; Checkland, 1999). By trial and error, the authors develop (new) methods of problem structuring. They contribute to our understanding of the way these methods are applied. A second stream that can be distinguished within the literature are the scientists who construct

models or theories of policy- and decision-making processes, some of which have a prescriptive nature. These models are often too abstract to appeal directly to those active in the policy field: references that fit within this line of thinking are Dery (1984), Hoogerwerf (1987), De Geus (1988), Van de Graaf and Hoppe (1992), and Dunn (1994). The third stream of literature concerns empirical research in policy and organization sciences. Examples are Hickson et. al. (1986), Joldersma (1993), and Bovens and 't Hart (1996). These studies describe different aspects of policy-making, problem structuring, and the way problems are defined. Whereas the prescriptive, consultancy oriented literature draws from experiences the authors had as active participants within policy analysis, the latter group of studies reflects from a distance and in abstract terms on their object of study.

1.6 Research questions

This research aims to contribute to the knowledge of problem structuring regarding complex policy issues and, in particular, the contribution methods of problem structuring can make to policy-making processes in interorganizational networks. Some of the main theoretical perspectives which compose the outline of the research were already introduced briefly above.

The main research questions are:

1. *How can we develop measures to empirically assess the quality of problem structuring in inter-organizational policy networks?*

Policy science is predominantly theory-oriented and has produced relatively little empirical research in the field of problem structuring. Joldersma (1993) and Termeer (1993) are among the very few who have addressed this topic. This study aims to contribute to empirical knowledge on problem structuring.

2. *What is the contribution of problem-structuring methods to the quality of problem structuring by policy networks?*

There has been a proliferation of the use of problem-structuring methods but there has been little empirical research into the effects of these methods. This research aims to contribute to empirical insight in this field.

3. *How can gaming/simulation be used to study problem structuring in policy networks?*

Field research as a method to gather data on problem structuring would be very difficult. It would take a very long time to draw substantial conclusions. Furthermore, gaming/simulation has been propagated as a useful tool for social research but it has not often been used for this purpose. By addressing this question, the study therefore aims to contribute to the knowledge about the role gaming/simulation can play as a research instrument.

1.7 Outline of the book

Chapter 2 presents a theoretical outline of what complex policy issues are, what problem structuring is, and how it relates to the policy-making process. In Chapter 3, five methods of problem structuring will be discussed and compared. A choice will be made to investigate a particular one further, namely, Strategic Option Development and Analysis. The chapter concludes with a discussion of quality criteria for problem structuring. Chapter 4 discusses gaming/simulation which will serve as a method for quasi-experimental research in which the chosen problem-structuring method will be tested. BANS, the game/simulation which will be used as an experimental environment, is briefly addressed. It simulates participatory policy-making in a municipality and lasts 2 days. The research design as well as the validity of BANS are discussed. Chapter 5 gives a more detailed description of the Strategic Option Development and Analysis method and how it will be introduced in BANS. An overview of the six municipalities which participated in this research is presented in Chapter 6. It also briefly discusses the structure of BANS. To give further insight into the game/simulation and prepare the reader for the Chapters 7 and 8, a close account is given of a run played by one of the municipalities. In Chapter 7, the results for the first day of BANS are presented. Chapter 8 gives an overview of the results of the second day of the game/simulation. Finally, in Chapter 9, conclusions will be drawn.

2. Problem structuring in participatory policy-making processes

2.1 Introduction

The previous chapter sketched the contours of this book. It deals with problem structuring within participatory policy-making processes initiated by a governmental organization.

In this chapter, some of the central concepts of this study are introduced and discussed. First, policy issues will be defined and distinguished from policy problems. The complexity of these issues will be addressed. Subsequently, a (participatory) policy-making process is characterized. Finally, we will explain in greater detail what problem structuring is and how it relates to participatory policy-making.

2.2 Policy problems and policy issues

2.2.1 Definitions

What constitutes a policy problem? The answers to this question are manifold and have changed over time. For some, policy problems refer to facts that are part of the real world. In their perspective, problems are visible or audible, or may come to us by our other senses so they can be known objectively. According to this 'ontological' view of problems, policy makers have the delicate task of defining the policy problem in such a way that their definition mirrors reality. In the perspective of traditional systems analysis, for example, there is a strong inclination to look at problems as objectively definable (Dery, 1984). It is an approach which '...deliberately expands and complicates the statements of problems until all the significantly interacting components are contained within it' (Ackoff and Rivett, in: Dery, 1984: 7). Ontological views of problems have given way to a 'constructivist' approach to policy problems. In the eyes of constructivists, policy problems are always subjective entities. They are constructed in social interaction. Policy makers

often have different perceptions and definitions of a problem. By their actions and interactions, they determine its meaning, and they try to influence the prevailing view of that problem. Experiences, beliefs, values and the types of relationships between actors will all influence the emerging definition.

The fact that policy problems and issues are socially constructed does not mean that the social problems which lay at the root of policy problems cannot have objective characteristics. Dery (1984: 4) writes: 'The view that problems are not inherently objective should not be taken to mean that difficulties do not objectively exist, as if the existence of hunger, death and fear were determined by some kind of cognition agent.'

An example of social constructivist thought in policy science is the study of Cobb and Elder (1972: 172) into agenda-building processes: 'To appreciate the stakes in the agenda-building process it is necessary to recognize the indeterminate nature of most public policy problems. Policy problems are not simply 'givens', nor are they simply matters of the 'facts' of a situation. They are matters of interpretation and social definition. Policy problems are socially constructed. They arise not so much from events and circumstances as from the meanings that people attribute to those events and circumstances.'

So, according to Cobb and Elder, a policy problem is a social product; policy actors give meaning to a situation and judge whether a situation is cause for action. The observations and interpretations people make of a particular situation are compared with a standard they have set themselves. When the judgement is negative, the gap between the perceived and desired situation constitutes the policy problem (Dery, 1984; Van de Graaf and Hoppe, 1992; Joldersma, 1993).

Although it expresses an undesirable situation, another important characteristic of a policy problem is that it entails a promise for a better future. The fact that various actors have put it on their agendas and thus have invested time and energy in it, implies that, in their understanding of the situation, they envision opportunities for improvement.

2.2.2 Social constructions and societal context

Policy problems are social constructs and '...not inherently objective entities in their own right, 'out there' to be detected as such, but (they) are rather the product of imposing certain frames of reference on reality' (Dery, 1984: 4). These frames can be influenced by individual actors' experiences, beliefs, goals, and interests, but also by the social, political, and economic context of a particular period or geographic unity and vice versa (cf. Bovens and 't Hart, 1996). Hence, what is perceived in one country or at one point in time as a problematic situation may, in another country or another period where different political ideas prevail, be interpreted very differently.

For example, the bombing of the Greenpeace ship in New Zealand waters in 1985 was perceived by the Netherlands and New Zealand as a serious breach of human rights and national integrity, but France, which was responsible for the action, perceived the incident as a badly planned exercise of their secret service to safeguard their nuclear testing programme.

2.2.3 Policy issues defined

In this study, a social constructivist approach to policy problems has been adopted. A policy problem is seen here as a discrepancy between a given situation or trend and a standard or desired trend, both defined by the policy actors which have a stake in the problem. In most cases, policy actors will be drawn to a particular policy problem by policy issues.

Policy issues are part of a larger policy problem which, according to policy actors (who may be politicians, interest groups, or civil servants), call for public action. They are perceived as susceptible to positive change and have, therefore, been placed on the public agenda (cf. Cobb and Elder, 1972). What distinguishes policy problems from policy issues is that the latter are current manifestations of policy problems. For example, unemployment can be viewed as a policy problem. A momentary call to fight the unemployment of ethnic minority women can emerge as a policy issue. Furthermore, a policy issue presupposes that policy actors disagree about which activities to pursue (Dunn, 1994: 85). So, policy issues make manifest social, political and organizational difficulties and dilemmas which arise when policy actors act upon their problem perception and try to co-organize their actions. For example, a civil servant tackling a local traffic issue will not only have to consider various technical matters related to the issue, but will also have to deal with various actions through which stakeholders express their opinions. Furthermore, the way these stakeholders are organized and their mutual relationships will affect the issue: e.g., the broader party-political constellation within the city council and the board of alderman may be an important parameter in defining and solving the issue.

In conclusion, *policy problems* can be defined as perceptions and interpretations of situations which are judged negatively when they are compared to a standard which people define. They presuppose the possibility of improvement. A policy issue is a current manifestation of a policy problem which addresses a particular part of that problem. *Policy issues* are characterized by perceptual conflicts which cause social, political and organizational difficulties among policy makers. These difficulties, which arise in the interactions following the agenda setting of an issue, are part of that issue.

Before discussing the policy-making process and the way actors define policy issues, we first will look at the complexity of policy issues, for methods to structure these complex issues are the object of this study.

2.2.4 The complexity of policy issues

In the preceding section, a distinction was made between policy problems and policy issues. In this subsection, we take a closer look at the complexity which characterizes policy issues. Different dimensions of complexity are distinguished.

Complexity has become a frequently used term among analysts of public policy as well as in organization and management studies. For many, the exponential growth of the number and size of organizations, of their tasks, rules and technologies, are important indicators for societal and policy changes and the increasing complexity of social reality. Growing awareness of the complexity of various aspects of society may, consequently, cause complexity to be used as catch-all independent variable, explaining all sorts of developments and thus rendering it meaningless (Dery, 1984: 69-70). A detailed description of the complexity of issues is necessary.

What makes policy issues complex or, as others prefer, 'messy', 'illstructured' (Mitroff and Sagasti, 1973; Dunn, 1988, 1994; Geurts and Vennix, 1989) or 'wicked' (Van de Graaf and Hoppe, 1992)?

Eden, Jones and Sims (1983: x, 15) see policy issues as 'predominantly set within politics, interpersonal considerations, idiosyncratic values and personal perspectives.' What makes policy issues often complex in their eyes is the fact that issues largely result from mental frameworks of personal beliefs, attitudes, biases, perceptions, etc.. These are rather diffused variables which are not at all easy to retrieve. If there are several actors who play a role in a particular policy issue, finding a common definition is a rather complicated task. So complexity, according to Eden, Jones and Sims (1983), refers to a lack of consensus among policy makers.

Table 2.1 Dimensions of complexity

	certainty of knowledge	
consensus on standard	*substantial*	*little*
substantial	tame issues	wicked scientific issues
little	wicked ethical issues	wicked political issues

Source: Van de Graaf and Hoppe (1992: 48), after Douglas and Wildavsky (1983: 5).

In addition to the level of consensus, the certainty of knowledge policy actors have on the issue also influences its level of complexity (Van de Graaf and Hoppe, 1992). A distinction is made between situations where there is little certainty and situations where there is substantial certainty about the issue. The following matrix presents four types of policy issues which can be distinguished on the basis of the two dimensions mentioned above.

'Tame issues' refer to situations in which there is a strong consensus on standards and substantial certainty about the knowledge regarding the existing and foreseeable situation. Issues with these characteristics are easy to solve.

'Wicked scientific issues' are marked by a strong consensus on ethical standards but considerable uncertainty about the knowledge that is available. These issues can be solved through scientific methods under certain conditions. However, there is no certainty that the scientific approach will be successful.

Diagonally opposite to 'wicked scientific issues' are the 'wicked ethical issues', which are marked by certainty of knowledge regarding the existing and foreseeable situation. The wickedness is caused by lack of consensus on normative standards. These policy issues may be solvable. They require a certain level of consensus or coexistence.

The fourth category comprises 'wicked political problems, in which both ethical standards and knowledge are strongly contested. No step has been taken to solve the problem, and it is rather doubtful if it will be solved. So, for Van de Graaf and Hoppe, the complexity of policy issues is determined by the level of consensus and the certainty of information.

A different typology of complex issues distinguishes 'well-structured problems', 'moderately structured problems' and 'ill-structured problems' (Mit roff and Sagasti, 1973; Dunn, 1994: 146). The typology is determined by five variables, which are presented in Table 2.2. Ill-structured policy issues involve many different policy makers whose utilities (values) conflict. There are many alternatives they can choose from. But since their outcomes are often unknown, it is difficult to assess possible risks of certain interventions. Hence, probabilities of success or failure are difficult to calculate.

This approach to complexity is more elaborate than the approach of Van de Graaf and Hoppe. It does take into account the level of consensus. However, for certainty of knowledge it differentiates between the uncertainty of the outcome on the one hand, and the calculability of its probability on the other hand. Moreover, there are two additional variables: the number of decision makers and the number of alternative solutions for the issue.

Koppenjan (1991) defines three aspects of complexity which underwrite some of the ideas of the authors discussed above. Firstly, he points out that many policy

issues correlate and seem to be interdependent (cf. Geurts and Vennix, 1989). Secondly, different ethical standards are used by different actors to define the policy issue (cf. Eden, Jones and Sims, 1983; Dery, 1984). Thirdly, policy issues are dynamic. They keep changing as a result of different perceptions of the societal problem, the ethical standard, or changing priorities between policy issues. Policy issues can be compared to clouds which can change form and size very rapidly; and there are always many clouds competing for their very own place in the sky (Koppenjan, 1991).

Table 2.2 Three levels of complexity

Element	**structure of problem**		
	well structured	*moderately structured*	*ill-structured*
dec. maker(s)	one or few	one or few	many
alternatives	limited	limited	unlimited
utilities	consensus	consensus	conflict
outcomes	certainty of risk	uncertainty	unknown
probabilities	calculable	incalculable	incalculable

Source: Mitroff and Sagasti (1973) and Dunn (1981) in: Geurts and Vennix (1989: 7).

In the approaches discussed above, some authors refer to knowledge and, therefore, the more cognitive aspects of complex issues: e.g., (un)certainty of knowledge, (un)certainty of outcome, probability estimates, precision of definition, and information level of strong variables. Others refer to social characteristics of policy issues: the level of consensus or the effects of social interaction on issue perceptions. This twofold distinction is also made by Geurts and Vennix (1989: 37-38) and Hickson et al. (1986).

Geurts and Vennix (1989) distinguish between the analytical and social complexity of an issue. Analytical complexity refers to cognitive aspects of policy issues. Cognitive complexity often implies that issues involve many variables which are often interdependent and connect several policy issues into a cloud of policy issues. It is difficult for policy actors to get insight into one particular issue. Furthermore, it is difficult to assess possible consequences of measures aimed at changing the issue since there is little certainty about how its various variables are interrelated. Interventions can cause all sorts of unforeseen feedback loops. In fact, it is the lack of certainty of knowledge - the dimension Van de Graaf and Hoppe

adopted - which makes the policy issue analytically complex (Geurts and Vennix, 1989).

The other dimension is social complexity and refers to conflict among policy actors about the aims, solutions, or regulations which a particular solution for a policy issue requires. A highly socially complex policy issue is marked by a lot of contention among the actors.

A distinction based on empirical research is offered by Hickson et al. (1986). They conducted a large empirical study comparing 150 cases of decision-making in both the public and private sector. They concluded that there are three main variables influencing policy-making: the complexity of the policy issue, the politicality of interests, and the norms and values that set the context in which different stakeholders operate. A distinction was made between the complexity of the policy issue and the way different interest groups interact with regard to a particular policy issue. The latter is referred to by Hickson as the politicality of interests. Table 2.3 gives an overview of the subvariables which constitute issue complexity and politicality of interests. The two concepts are not directly linked. However, processes involving highly complex issues also tend to be highly political. Processes involving issues that are of average or little complexity tend to be least and less political, respectively.

Table 2.3 Indicators of the complexity of policy issues and politicality of interests

Politicality of interest
- intervention from outside the organization
- imbalance of influence
- contention of objectives
Complexity of policy issues
- the rarity of the matter: is the issue at stake a familiar one for the organization or not?
- consequentiality: how radical, serious, widespread, and/or long-term are the consequences of certain decisions? For consequentiality there are four indicators: radicality, seriousness, diffusion, and endurance.
- percussiveness: what are the consequences of the decision for future decisions? Or, in other words, does it set precedents?
- involvement (what is the number of interests involved?)

Source: Hickson et al., 1986.

These two main variables are seen as rationalities that are influenced by a third rationality, the rationality of control, which refers to the rules of organizations which

shape the policy-making process. This last rationality adds a new dimension to complexity.

2.2.5 Three dimensions of complexity

In our approach to complex policy issues, we distinguish a continuum with non-complex issues at one end and complex issues at the other. There are multiple levels of complexity that do not necessarily fit the threefold distinction of Mitroff and Sagasti (1973). This continuum has three dimensions: cognitive complexity, socio-political complexity, and normative complexity.

Cognitive complexity

Cognitive complexity concerns questions of knowledge about an issue: what are its variables, how does this issue relate to others, and what are possible feedback loops? Cognitive complexity involves uncertainties regarding the effects of certain developments that characterize the issue. The more information cues are necessary to grasp the issue, the more complex it becomes. Information will not always be available. Furthermore, the way information cues relate to one another can influence the cognitive complexity of an issue. If various information cues can be connected, this will reduce uncertainty. So, cognitive complexity can be defined as the level to which an issue involves substantial and/or highly specialized information that is partly difficult to obtain or judge.

Cognitive-psychology research has demonstrated that humans have limited cognitive abilities, which curtails the information load they can absorb: 'We have a small but fast short-term memory, not large enough to hold all the facts and algorithms necessary to solve complex problems' (Volkema, 1983: 641). People also have limited faculties as far as their memory is concerned. It is impossible for us to remember every bit of information that reaches us. In fact, forgetting things can indeed be very useful at times. In our memory, we reconstruct past events on the basis of fragments we remember and integrate these into our own image of the past. Furthermore, information selection and interpretation is very much a product of people's perceptions. Perceptions are influenced by the fact that people seek information which is consistent with their beliefs and experiences. They will trivialize information which runs against their beliefs (Hogarth, 1980). Information handling, therefore, is thus not without difficulties, and facilitating policy-making processes for cognitively complex issues may assist policy actors in managing these difficulties better.

Socio-political complexity

Our second dimension of complexity is socio-political complexity. Whereas Hickson et al. (1986) make a distinction between the complexity of the policy issue and politicality of interests, we also consider the latter as a dimension of complex issues (cf. Geurts and Vennix, 1989). Issues are socio-politically complex when they involve many actors who form complex social networks and have many different institutional interests to defend. The higher the number of parties which become involved in a policy-making process, the more difficult it may become to align the various perceptions of the issue. More parties could easily mean more different interests. Hence, the number of policy actors contributes to its social and political complexity since it will become more difficult to organize the various perceptions and interests. Yet, more policy actors may also contribute to a more cognitively complex issue if they add more diversified information about the issue to the process.

Normative complexity

The third dimension of complexity we introduce here, is partly influenced by the third rationality Hickson et al. called the 'rationality of control'. Normative complexity concerns the contention of norms and values which lie behind the various actions and perceptions of policy actors with respect to a complex issue (Joldersma, 1995). Policy actors will develop norms and values which determine how they will deal with policy issues. The way different actors interact, the expectations they have, and their attitude are all determined by the belief systems which are dominant in the organization or network they are part of. The more contention there is between beliefs, the more complex an issue will become. So, normative complexity determines the rules within which the policy actors make choices regarding cognitive complexity and the social political complexity (cf. Hickson et al., 1986: 250).

2.2.6 The relationship between the three dimensions of complexity

Both Termeer (1993) and Joldersma (1995) emphasize the interconnection of socio-political aspects and cognitive aspects in policy-making. Termeer argues that these two dimensions are interdependent. A cognitive 'fixation' demands for a socio-politically oriented intervention and vice versa.

Joldersma (1995) suggests that the three dimensions are in fact cumulative. Socio-political complexity presupposes cognitive complexity because, if there is no agreement on the perception of an issue, then there is also discussion about facts. Normative complexity presupposes social-political complexity and cognitive complexity because competing values imply that there is disagreement on issues. So,

for instance in the case of conflicting underlying values, the policy network will be polarized, and the content of the policy issue will be complex as well. Although this conclusion seems to be a valid one, it calls for differentiation. Take, for instance, the policy issue of whether and how euthanasia should be made legal. This is by all means normatively very complex since it refers to strongly opposing fundamental human values of people and organizations. In the Netherlands, legalizing euthanasia has been discussed by opponents and proponents extensively and in great detail. The issue is cognitively complex because of its percussiveness and consequentiality: it would have far-reaching consequences for the medical profession and the way they define their task. It is socio-politically very complex because it involves a number of organizations with strongly competing goals (churches, political parties, patient organizations, organizations of the elderly, the handicapped etc.). However, what dominates the issue is the fact that it involves norms and values that are fundamental to our belief systems. In the case of euthanasia, normative complexity seems to be the main source of contention that feeds the other dimensions of complexity. Alternatively, other policy issues - e.g., organizational issues regarding the police and the legal system - may be predominantly cognitively complex or socio-politically complex or possibly score high on two or three of the dimensions.

In conclusion, we have selected three dimensions of complexity of policy issues. These three dimensions, the cognitive, socio-political, and normative dimension, are interrelated. Depending on the characteristics of a particular policy issue, the three dimensions of complexity will differ in how important they are for the issue. Some issues will be dominated by social-political complexity whereas other issues are more cognitive in nature. Hence, there is no general sequence in the way the three dimensions are connected.

2.3 The policy-making process and the need for problem structuring

Problem-structuring activities can be differently understood, depending on the nature of the policy-making model (Lyles and Thomas, 1988). The particular perspective of policy-making one supports, affects the way a policy issue as well as problem structuring are perceived. For example, proponents of a rational policy-making model assume that there is an objectively definable issue that can be structured by means of a cognitive exercise in collecting and analysing all information that can be known objectively. In other words, the view one takes of the policy-making process has implications for how problem structuring is understood.

In the next section, the emphasis will be on participatory approaches to policy-making processes (see also Chapter 1).

2.3.1 Participatory policy-making processes

Introduction

Policy-making is compared by Hickson et al. (1986: 252) with a game of American football. Many groups participate in policy processes and try to defend their group's interests. Some are better equipped than others. They wear thicker protective padding and harder helmets and/or have more team members. Policy-making is a game in which it is often not quite clear how exactly to find the goal. Eventually, one team or coalition of teams pushes its way through, holding the ball to where it says the goal is. A policy game is never the same since (numbers of) teams and playing modes differ. 'Organizations are therefore less the result of deliberate design than it is the only partly intended accumulated result of decision-making games over the years' (Hickson et al., 1986: 9).

The above metaphor of the policy-making process combines Lindblom's theory of incrementalism, the arena theory, and the garbage-can model of policy-making and takes a participatory perspective of policy-making. Participatory policy-making processes are the object of our research because the policy issues we are interested in involve various policy actors. Participatory policy-making refers to processes that involve policy actors who have a stake in the issue and actively take part in structuring it, developing policy and implementing that policy. This style of policy-making has also been denoted as co-production (Bekkers et al., 1996) and more commonly as interactive policy-making (Van Woerkum, 1997). Below, we present different theoretical perspectives of the policy-making process that inspired the Hickson model and our understanding of participatory policy-making.

Incrementalism

In Lindblom's (1965) view, policy-making is basically an incremental process. It is the art of muddling through: policy makers proceed by taking little steps, one after the other and try to make progress with one or the other policy issue. Lindblom's theory of incrementalism was a response to the synoptic theory of policy-making. This traditional approach to policy-making processes assumed that policy makers could obtain a complete overview of a societal problem and contemplate all possible solutions and choose the best one to implement. Government was perceived as the central actor, and relatively little attention was paid to the role other actors might have in the process. The rational ideal of deciding on the basis of perfect information is an illustration in the view of the incrementalist. Instead, policy makers only examine a few alternatives and try to achieve small changes, one after the other, and thus, in the long run, many small changes will amount to a genuine improvement of a situation. Policy makers are not able to seek perfect solutions. They lack the time

and information to enable them to make exact predictions about societal developments and effects of policy action. Furthermore, they also lack a world in which it is self-evident what constitutes good and bad. There are often competing interests and not seldom diverse belief systems which produce different perceptions of the issue and different preferences regarding policy development and implementation (Lindblom in: Van de Graaf and Hoppe, 1992). These interests and beliefs are susceptible to change brought about by negotiation and persuasion. This approach to policy-making acknowledges the presence of many actors in the process. Nevertheless, it recognizes the special role of government in the process and, hence, takes the individual governmental actor as its main object of study.

The garbage-can model

The garbage can is a metaphor for policy-making in an arena (Cohen et al., 1972; Kingdon, 1984 in Teisman, 1995: 41). It refers to a collection of three flows consisting of policy issues, interests, and solutions which are 'churned around until solutions become attached to problems' (Hickson et al. 1986: 12). These three flows are relatively independent and policy is made when the three are connected. The garbage can model is a rather radical break away from the traditional model. The traditional approach views policy-making as a sequence of agenda setting, policy formulation, policy adoption, policy implementation, and policy assessment (Dunn, 1994). Phases models have analytical advantages: they can help to categorize the various activities of policy actors and offer useful heuristics for policy makers. Nevertheless, they also have limitations. The garbage-can model differs from traditional models of policy-making where the latter take a sequential perspective of problem structuring, policy development, and implementation. Following the garbage-can model, these categories of actions coexist simultaneously.

Issues, solutions, and participants are independent flows which meet by chance when participants put issues and solutions in a garbage can. A garbage can is a metaphor for a moment of choice. The central assumption of the model is that policy makers can only spend limited time and attention on the policy issues they are faced with. There are too many issues that call for attention, and hence they are not in a position to balance arguments and interests and weigh information very carefully. Nevertheless, choices have to be made. Consequently, the process is often irregular and chaotic. Whether problems, issues, and policy makers are connected depends on content and composition of the garbage can, the production of garbage, and the presence of other garbage cans. Policy actors do not determine the process, but issues and solutions are also relevant for the realization of a connection. 'It is not only problems which seek solutions but also solutions which seek problems,

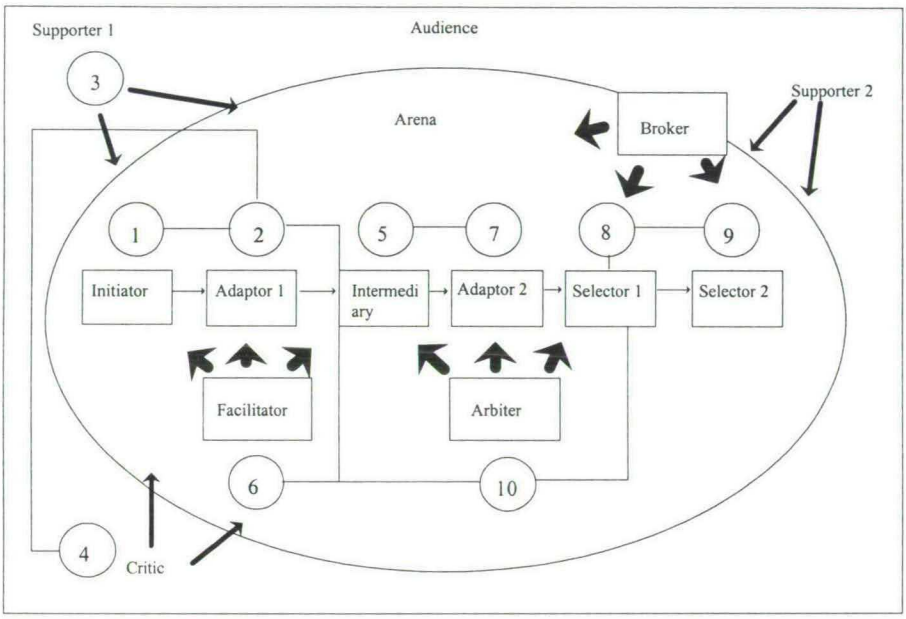
moments of choice seeking actors and policy makers seeking work' (cf. Koppenjan, 1993: 25-26).

The garbage-can model is in essence a multi-actor approach. How the various policy makers contribute to the realization of a connection between issues and solutions remains unclear. Therefore, it offers limited insight into the participatory side of policy-making processes involving multiple actors. Its merit is that it illustrates the irrational characteristics of processes which evolve around complex policy issues. Policy-making is more than making rational choices on the basis of selected and ordered information. It is an interplay of conflicting interests, emotions, interpretations of past events, and expectations regarding future events (Koppenjan, 1993: 31).

A network approach: the model of rounds

Another approach to policy-making, which is more participatory in outlook and is founded on the policy network approach, is the model of rounds (Teisman, 1992; 1995). It combines different perspectives on policy-making. The traditional model of phases of policy-making presupposes, according to Teisman, the presence of a central actor who prepares problem structuring, policy development, and policy implementation. Thus it leaves little room for the contribution of other policy actors. In the model of rounds (see Figure 2.1), which can be viewed as an example of a participatory policy approach, different stakeholders play a central role, and solutions and policy issues only arrive on their instigation. The arena it describes is the activated part of a policy network, and it involves those actors who are actually influencing policy-making. Networks involve many dependent and more or less equal policy actors. The notion of dependency between actors is crucial for understanding how policy networks function (Teisman, 1992; Smits, 1995). Since resources are limited, organizations need each other to realize their goals. They have to interact with others and organize support in order to achieve their aims. The relationships between actors in a policy network are subject to change and hence dynamic, but they are not casual or without obligations (Klijn and Teisman, 1992; Teisman, 1992: 51). Although actors are considered to be relatively equal, they do differ in the resources (e.g., status, power, financial means, knowledge) they have at their disposal. In this respect, policy-making can be compared to a game which evolves in several rounds of decision making, and where policy actors meet in several parallel arenas. The rounds in one particular arena are clusters of decisive actions taken by actors.

Figure 2.1 Model of Rounds



Source: Teisman, 1992.

The quality of their outcome is determined by the correlation of these actions. There are different roles in a policy game. The initiator is the actor who lays the foundation for a policy. Supporters are actors who take an interest in the policy and are willing to give their support. Critics oppose the policy. Sometimes there is an intermediary who becomes the driving force behind a project. In cases where conflict is continuing, a broker can be of use in building consensus. If he does not succeed and the conflict intensifies, a referee is needed to settle the matter. Finally, there are facilitators, who are actors who contribute their knowledge without having a particular interest. Policy makers can change role. Furthermore, since they may be involved in different arenas at the same time, they may have different roles in different policy processes. It is possible, therefore, to follow a game of policy-making horizontally during a specific period of time span, and at the same diagonally through the different policy games in which actors are involved.

The model of rounds differs from the garbage can model where the latter suggests that policy-making processes can be explained by objective characteristics of issues, actors, and solutions (Teisman, 1995:41). The model of rounds takes a

somewhat more constructivist perspective: the perceptions and actions of policy actors determine where policy issues and solutions meet. Policy-making is thus the result of interacting perceptions, and it is an iterative process. Like the garbage-can model, it does not reserve problem structuring, policy development, and implementation for a specific time span, but activities contributing to either of these factors can (re)appear at different moments in the various rounds.

The model of rounds is participatory in outlook and takes account of different policy makers who vary in the resources they can mobilize. However, it does not recognize the special role government often plays in public policy-making. Although they are dependent on other organizations, there will always remains instances, of government organizations not opting for a participatory approach but forcing their preferences on the network.

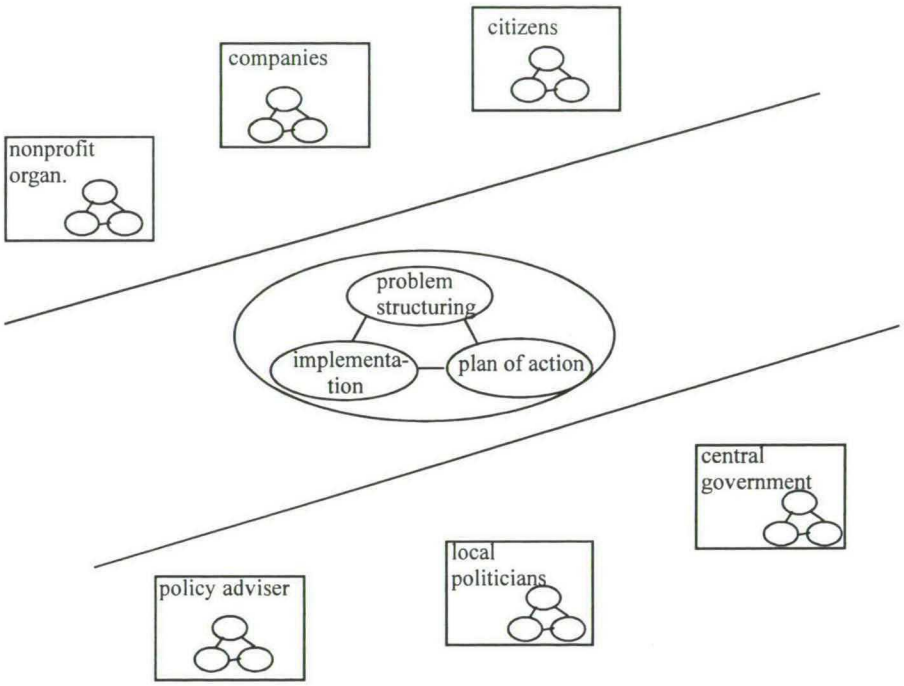
An alternative participatory approach to policy-making

Some participatory policy theorists consider government as one among a network of relatively equal policy actors. However, government can also hold a dominant position in a network. In many public policy-making processes, government organizations tend to have a special responsibility for defending common interest. Where other policy actors pursue the interests of a particular community (be it business people, sports people, the education sector, or grass-root organizations), government organizations are obliged to weigh the different interests that have a stake in policy issues. The role of promoter of the common good is often laid down in constitutional law. Given their special position, government organizations tend to be better equipped to perform the role of organizer and coordinator of policy-making. In the model described below, government can play the different roles of a promotor and coordinator, as well as that of an equal partner amidst an inter-organizational network. The model was designed for the game/simulation BANS, which will be discussed in Chapters 4 and 6. It takes a participatory approach to policy-making. Figure 2.2 illustrates this model. It represents a process in which interacting policy actors - with diverse interests - engage in constructing a policy. The policy actors are organizations or groups that have a stake in a particular issue. Together they are part of a network around that issue. The organizations can be representatives from the public and/or private sector. However, it is a governmental organization which is formally responsible for tackling the issue which has reached the policy agenda. The various organizations or groups try to influence the policy-making process. There is a wide variety of actions from which they can chose: from writing letters to informal talks, from interviews with journalists to protest meetings, and from financial support to legal claims. In their effort to influence policy, actors are bound to undertake different (re)actions and thus acquire a portfolio of different

actions which can be directed at one or more of the other participants in the network. They will attempt to persuade others of their preferences regarding the issue and or the way it should be dealt with. As indicated in section 2.2, an issue has both content characteristics and process characteristics. Policy actors have to make choices both regarding content and process. Through interactions, they aim to influence the dominant perception of the policy issue. Furthermore, they will also aim to influence the choice of options and the way these are implemented. Problem structuring, policy development, and policy implementation are categories of actions which constitute the policy-making process. Problem structuring concerns activities which contribute to the way the policy issue is defined. Policy development refers to the choice of and development of a solution. In Figure 2.2 policy development is represented by the plan of action which captures the option which is chosen from probably a number of alternative options. Implementation refers to activities which bring about the execution of the plan of action. The three categories of activities which together constitute the policy-making process are interrelated: a change in perception of the issue may affect choices regarding policy implementation or policy development and vice versa. A governmental organization will play a more central role in the process. It will lay down the dominant perceptions of the definition of the issue, the possible options, and the way policy will be implemented. Other organizations will try to influence one or more of these perceptions directly or via fellow participants in the network.

If the responsible government is, a municipality as Figure 2.2 suggests, one or more civil servants will be made responsible for the policy-making process and develop a portfolio of activities and interact with the other stakeholders. These other stakeholders can be companies, health or welfare organizations, sport clubs, pressure groups, neighbourhood councils, individual citizens, local politicians, or even other governmental organizations. Policy actors can participate in problem structuring, policy development, and policy implementation. It will be the city council who probably determines the level of participation. Various instruments have been designed in the past decade to facilitate a more participatory approach to policy-making, e.g., problem-structuring methods like SAST, which will be discussed in the following chapter, consensus conferences, scenario workshops and gaming/simulation (for an elaborate account of participatory methods see Mayer, 1998: 82-116).

Figure 2.2 A model of participatory policy-making



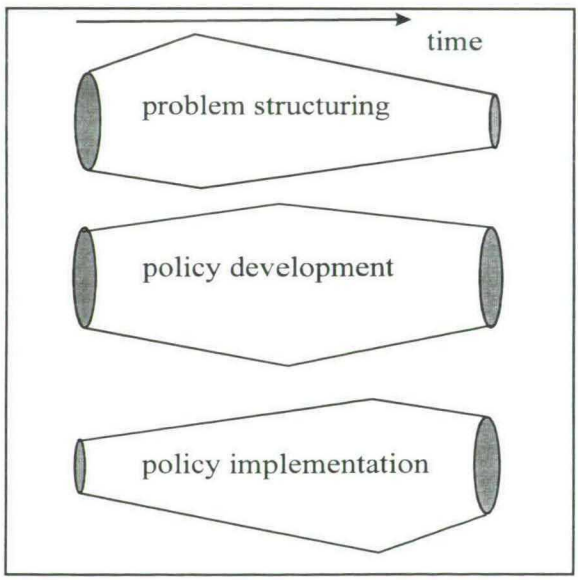
Source: Joldersma and Geurts, 2000.

2.3.2 Problem structuring

This study will address only a specific part of the policy-making process, problem structuring, which refers to those activities in which different actors - here different organizations - try to reduce the complexity of the policy issue. When an issue is placed on the political agenda, policy actors will engage in activities directed at defining the policy issue. With these activities they structure the issue and construct a definition. Policy issues will continue to announce themselves and may be redefined. Problem structuring is therefore not an activity which only features at the beginning of the policy-making process and then gives way to policy development, like the model of phases and Dunn (1994: 17) suggest (cf. Joldersma and Pegman, 1999). Here, problem structuring is viewed as an ongoing activity which at times is at a low with little input and hardly any changes in the position of the different actors. At other times, however, new input from one or more of the actors, or the environment they operate in will provoke new activity, and as a result the issue may

be restructured (cf. Bovens and 't Hart, 1996). Problem structuring is part of a participative, iterative, and dynamic process. Our perspective of the policy-making process is that of ongoing construction efforts directed at making sense of and solving complex policy issues which either contribute to problem structuring, policy development, or implementation. However, as Figure 2.3 indicates, problem structuring is more present in the first part of a policy-making trajectory. The following figure shows how problem structuring is an integrated part of the larger policy-making process.

Figure 2.3 Policy-making and problem structuring



2.3.3 A definition of problem structuring

In the literature, problem structuring or, as others prefer, problem-setting is defined differently. Here, we present a selection is presented of descriptions which provide the building blocks for our definition of problem structuring.

First, according to Mason and Mitroff (1981: 24), problem structuring refers to a set of activities which, depending on their specific aim, can be subdivided in problem sensing, problem defining, and formal modelling as opposed to activities directed at solving a policy issue. Problem sensing refers to 'recognizing or feeling' that there is a problematic situation. Problem formulating means that the issue is

looked at from several distinct and different macro points of view. Formal modelling implies that a single micro view of the problem is operationalized and examined. A scientific model of the issue, therefore, contributes to a further specification of a policy issue. Mason and Mitroff offer a prescriptive approach of problem structuring, for they specify that the modelling of the issue should be a product of scientific insights and comparison.

A similar prescriptive account of problem structuring is presented by Dunn (1994: 148-149). For Dunn (1994: 161, 185), problem structuring is 'the process of generating and testing alternative conceptualizations of a problem situation', and it involves 'the use of higher-order methods (metamethods) to discover the critical elements of the problem, their causal arrangement, and value implications'. He distinguishes four interdependent phases of problem structuring for policy analysts: problem sensing, problem search, problem definition and problem specification. The process of problem structuring starts when a problematic situation has been sensed. A problem search will be conducted, and several problem representations of different stakeholders will be collected. This cloud of problems is referred to by Dunn as the 'metaproblem'. Subsequently, the most basic and general terms of the problem are defined, and the result is a 'substantive problem'. Next, the problem is specified further and defined in greater detail, resulting in a 'formal problem'.

Both Mitroff and Mason, and Dunn distinguish different types of activities of problem structuring. They differ where the latter distinguishes between problem search and problem definition, whereas for Mitroff and Mason this is one phase. Dunn's problem specification concerns the formalization of the problem with scientific means, which corresponds with formal modelling. Both (prescriptive) approaches of problem structuring emphasize its iterative nature. They aim to contribute to a more analytical approach of policy-making. Mitroff and Mason (1981: 13) as well as Dunn (1994: 29) advocate the importance of participatory approaches to the policy-making process, but they tend to focus more on cognitive complexity. Another approach, which pays somewhat more attention to problem structuring as a social process, is offered by Eden, et al. (1983). For them, problem structuring concerns a line of activities set 'within politics, interpersonal considerations, idiosyncratic values and personal perspectives' (Eden, Jones and Sims, 1983: X). In policy-making processes directed at complex policy issues, opinions of policy actors are often too far apart to be easily merged into a definition which is accepted by all actors involved. Problem structuring is therefore also an activity of disjointed and sometimes competing actors and agencies (Bovens and 't Hart, 1996). They compete for the dominant view of what constitutes a certain problem situation and these views are, by definition, biased. Rein and Schön (1977) also emphasize the interactive nature of problem structuring, but this is not reflected

in their definition. They define problem structuring as the finding, building, and selecting of a framework in which uncertain situations can be organized. They emphasize that these activities should contribute towards transformation of the issue and encompass a potential for positive change. This captures an additional characteristic of policy issues. The fact that actions are taken to affect an issue positively presupposes that conditions which mark the issue can improve. Consequently, problem structuring presupposes that there is an opportunity for improvement. It involves defining differences between the existing and the desired situation (cf. Pound, 1969: 5, Dery, 1984: 5-9).

Our definition of problem structuring includes a set of activities directed at creating order in the various complexities which mark the issues we are interested in. These activities include a moment when actors become aware of an issue and possible characteristics of the issue are searched. Problem structuring also involves a selection of the ideas that are considered relevant for the issue, for it should involve both divergent and convergent thinking. The ideas that are selected are subsequently ordered and connected. Secondly, our definition ought to voice the participative nature of the policy-making process of which problem structuring is a part. Finally, it ought to express a possibility for positive change.

Summarizing, problem structuring is defined as a process of activities and interactions directed at sensing and searching, selecting and building aspects of the policy issue with the aim to create order and transparency.

2.4 Conclusion

In this chapter, the main theoretical concepts that are relevant for this research were explained. The object on which we will focus is a policy issue. It can be defined as a situation perceived by policy makers as in need of positive change. Three different types of complexity of policy issues have been distinguished. These are cognitive, socio-political, and normative complexity. It is around the policy issue that the policy-making process evolves and a network of actors gather and enter into relationships. It is through these relationships that they structure the issue, develop policy, and implement policy. Our study addresses participatory policy processes that are characterized by an iterative and game-like process in which policy actors define and redefine their object and thus contribute to problem structuring, policy development, and/or implementation. They operate in an arena-like environment and aim to promote their interests.

The policy-making process at large will not be the object of this research, but it will concentrate on problem structuring. Problem structuring is defined as a process of activities and interactions directed at sensing and searching, building and

selecting aspects of the policy issue in order to reduce its complexity. It is an integrated part of the larger policy-making process.

In the Chapter 3, methods of problem structuring will be described which were designed to tackle complex policy issues. Furthermore, we will introduce six criteria which can be used to determine the quality of problem structuring.

3. Problem-structuring methods

3.1 Introduction

In the previous chapter, the nature of the complexity that characterizes a policy issue has been discussed. In order to assist policy makers in handling complex policy issues, methods have been designed which can support actors in problem structuring during the policy-making process in various ways. There are many methods which have been designed or could be used to support problem structuring (cf. Rosenhead, 1989; Flood & Jackson, 1991; Mayer, 1997). The five methods which will be discussed in this chapter present not an exhaustive summary of the field. They are methods which are reasonably well established in the Anglo-Saxon and Dutch domain concerned with a methodical approach to complex problems. Strategic Option Development and Analysis (SODA) and Soft Systems Methodology (SSM) are included in Rosenhead (1989) who gives an overview of six soft Operational Research approaches which are participative in outlook and aim to structure complex issues. They are still in use. SAST is one of the oldest methods and is often referred to. In the Netherlands, Vennix developed group model-building further in the nineties and has become an authority in the field of System Dynamics. DeTombe published recently on the method Compram. All methods have in common that they present a clear outline of the procedure they advocate. Section 3.2. presents a typology of problem-structuring methods and briefly describes the disciplinary traditions from which these methods stem. Section 3.3. addresses the methods Group model-building, Compram, SODA, SAST and Soft Systems Methodology. The theoretical background, mode of application, and the aims of these methods are discussed and compared. The methods are compared in section 3.4. In section 3.5, a choice is made for one method which will be further assessed in this study. Besides the method used, there are other factors that influence the problem-structuring process. These will be discussed in section 3.6. Section 3.7 addresses quality criteria for problem structuring. Finally, a summary is given in 3.8.

3.2 Typology of methods

A great number of methods have been developed to aid problem solving in and between organizations. In the Operational Research tradition, these are often categorized as either hard or soft methods. These qualifications refer to theoretical perspectives about methodology and the ontology of policy issues and problem structuring. Hard methods are a product of a more quantitative, cognitively oriented, and positivistic tradition. Soft methods are influenced by the behavioural sciences and emphasize the importance of assisting social interaction in order to facilitate problem structuring (cf. Jackson, 1982: 7; Forrester, 1994:249-251).

Disciplines that have contributed to the development of problem-structuring methods are operations research, system dynamics, systems engineering, and systems analysis. All disciplines originally encouraged hard systems thinking. Operational research (OR) is very much exemplary of 'rational comprehensive planning' (Rosenhead, 1989: 3). It aims to contribute to finding optimal solutions for all sorts of complex issues in large systems of people, materials, machines, money, etc. in both public and private organizations (cf. Duckworth, Gear and Lockett, 1977; Huisman, 1985). In the traditional hard OR approach, a model of a system is developed. Quantitative and computer-based techniques are used to identify the optimal solution for a specific issue. It is an interdisciplinary approach which strongly emphasizes the merits of rational thinking and is associated with a strong planning orientation.

System dynamics as a discipline started in the mid-fifties with Forrester's mathematical models for processes in industry and for the military. Forrester was dissatisfied with the traditional operational research approach of model building which concentrated on open-loop thinking and producing models which seemed to be of little practical use. A dynamic approach to system thinking was necessary which concentrated on the modelling of closed systems by presenting a holistic view of an issue, thus comprising all possible and relevant elements and the relationships between these elements. The behaviour of a system is 'primarily determined by the characteristics of the whole and not by the characteristics of its individual parts' (Forrester in: Vennix, 1996: 45). The dynamic models show how changes flow through the system and, via loops, feed back the effects of these changes into core elements and thus induce a new pattern of change (System Dynamics will be discussed further in section 3.1.1).

Another discipline which contributed to the development of problem -structuring methods was Systems Analysis. It was originally developed by the Rand Corporation and combines theories from the fields of engineering and economics in order to assist policy makers who are responsible for complex projects. It is originally goal-oriented and tries to define systems of costs and resources which can bring about this aim. It uses

models showing the interdependency of objectives, systems, resources and environment (Hitch, 1955).

Finally, System Engineering originated from the field of engineering and takes the problem-solving approach of the engineer as a starting-point. It too is objectivistic and positivistic about how issues and goals must be perceived. Its thinking is oriented towards goals rather than issues.

In the seventies, criticism of the rationalistic outlook on operational research and other hard system approaches mounted: the field was oriented too much on industry and businesses. Furthermore, the unconditional faith in planning was not justified by results. The positivistic approach of operational researchers did not deliver its promises. The political ideology also turned increasingly against the notion of planning, and a new faith in market forces was propagated. The awareness grew that human interaction between policy actors mattered as did power and conflict: aspects that were neglected by traditional hard system thinking. These rational/traditional or hard approaches presupposed that policy issues were clearly defined. It became apparent that the hard methods needed to be complemented by softer approaches. A more participatory approach was needed that would not only result in products like plans, designs, and recommendations, but also in more mutual understanding and a better relationship between policy actors (Rosenhead, 1989: 16). Soft method approaches like Strategic Option Development and Analysis (SODA) and Soft Systems Methodology (SSM) were developed to encompass these aspects of problem solving. They are influenced by cognitive and social psychology, and organization and policy sciences and emphasize the importance of interpersonal relationships and the building of consensus (Tomlinson, 1990: 179).

In this study, we will concentrate on soft approaches because they are obviously more susceptible to the socio-political and normative complexity of policy issues and the policy-making process as we see it. Before describing some soft methods in the next section, a distinction is made between methods, methodology, tools, and models (cf. Tomlinson, 1990: 179-188).

Methods: problem expansion and problem reduction

Methods are general approaches to policy issues which include a certain sequence of steps and the use of several techniques and tools. A distinction can be made between the use of problem expansion and/or problem reduction techniques. The former are more directed at divergent thinking and exploring the boundaries of the issue. Problem reduction techniques are based on a rational and efficient approach to an issue: they focus on a limited number of solutions. They quickly narrow down the parameters of the policy issue and/or divide the problem in sub-problems.

Methodology
Methods are based on a methodology, i.e., theoretical assumptions that are often derived from various scientific disciplines as well as ideas about how issues should generally be solved. Soft systems thinking can be viewed as a methodology that assumes that a policy issue cannot be known objectively. Its subjective nature is a common characteristic of the methods described in this chapter.

Tools
Tools are aimed at aiming specific tasks or results. For instance, brainstorming techniques are tools used for generating information. A useful distinction can be made between:

- hardware tools, e.g., whiteboards, software, slide projectors, computers, computer wide screens, paper and markers, magnetic hexagons, etc.;
- software tools like: analogical reasoning,[1] creative thinking techniques like brainstorming, visual images, or bisociation,[2] and more practical tools like the arrangement of seatings, or computer software program like COPE and STELLA.

Models
Models are representations of reality: they describe (some part of) an (inter)organizational process or institution. Examples of models are: system models, cognitive maps, flow diagrams, gaming/ simulation, and metaphors. Different types of models describe different elements of a policy issue.

The next section addresses various methods. These methods make a selection out of a number of tools, and, depending on their methodology, they build a certain type of model.

3.3 Problem-structuring methods

In this section, five methods are discussed which claim to contribute to problem structuring.

3.3.1 Group model-building
Group model-building is a method that is used to facilitate groups in making decisions on strategic and very complex policy issues (cf. Vennix, 1990, 1995, 1995). 'It focuses on building system-dynamics models with teams in order to enhance team learning, to

1 This involves drawing comparisons between known facts and unknown issues that require clarification and may enhance insight into possible answers to the issues.
2 The issue is related to unconnected elements to stimulate a sense of estrangement.

foster consensus and to create commitment with a resulting decision' (Vennix, 1996: 3). The groups are small and represent public and private organizations. The method primarily facilitates group interaction processes. It is in the interaction that the performance of a group is decided.

Group model-building is not an appropriate strategy for every imaginable policy issue. Vennix (1996: 107) gives three preconditions which need to be met in order for group model-building to be successful in managing policy issues. Firstly, a system-dynamics-oriented approach aims at tackling consequences that are difficult to predict due to the underlying feedback mechanisms that characteristize complex policy issues. Group model-building is therefore qualified for non-transparent complex issues that are marked by various effects that are hard to predict. Secondly, System Dynamics is especially suitable for identifying long-term effects of policies and policy issues. The third point that needs to be addressed is whether it is possible to generate a reference model of behaviour or whether the client's question provides insufficient information in this respect.

Goals

Group model-building is primarily aimed at diagnosing a policy issue and at assessing various aspects of the issue and the possible impacts of possible future policies (Vennix, 1996: 107). The method aims to build a shared understanding of a particular policy issue in a small group. In order to achieve this, both the analytical aspect of the problem as well as the attitude of the policy actors need to be addressed. A learning environment must be created which encourages actors to understand the issue. Consensus must be built and, furthermore, acceptance of the ensuing decision and commitment to this decision should be stimulated. These three components, learning, consensus, and acceptance are the three main goals of group model-building in Vennix' view.

Theoretical background

Group model-building is based on System Dynamics theory. Additional sources are theories about human information processing, organizational learning, and group processes.

The cognitive simplification strategies, which were briefly introduced in the previous chapter are the building blocks of cognitive-psychological theories of human information processing and part of the frame of reference which inspired the development and design of the group model-building method. It is because people have a tendency to look only at parts of problems and make simple cause-and-effect rules without interrelating all the different relevant elements, that system dynamics seems to be a useful approach as it aims to build holistic models. It assists policy actors in integrating the various elements that are relevant for a policy issue. Like other methods,

group model-building is designed to block the human tendency to simplify the meaning of sets of information, and it challenges people to take a different approach to information handling by a group. The way information processing proceeds strongly influences the cognitive models people make of reality. Because of the subjective nature of information selection and interpretation, these models may differ quite substantially for people who are part of one and the same organization. Group model-building aims to align the different models individual policy actors have of a specific policy issue (cf. Vennix, 1996: 24).

System dynamics as a problem-solving approach was already briefly introduced in section 3.2. It is a discipline that concentrates on model building of closed systems, in which feedback effects receive a lot of attention. The structure of a system-dynamics model consists of four hierarchical levels:

- the closed boundary;
- feedback loop as the basic system component;
- levels and rates;
- goals, observed conditions, discrepancy between goals and observed conditions, and desired actions (Vennix, 1996:45).

The closed boundary refers to the fact that all possible elements that influence the causes and symptoms of a particular issue are considered as part of the system. Elements for which this is not the case are viewed as external factors. The elements included in the model are all relevant, as are the relationships between them. The changes within this closed system are the result of feedback loops. If these loops are positive, they will reinforce the system state. Negative loops will eventually stabilize the system. The variables in the systems that represent accumulations can reach different levels at different points in time, depending on the changes that occur. These changes are a result of actors defining goals and observing conditions and reacting to possible discrepancies between these two in order to achieve the situation they desire. Feedback loops show the consequences of their behaviour for certain variables. It is important to realize that the relationships between variables are not always linear, and non-linear functions increase the variety in systems behaviour. They cause the effects of feedback loops to change considerably in strength.

Mode of application

The group model-building method aims to build a system dynamics model with a group of policy actors that face a particular policy issue. (Figure 3.1 gives an overview of the different steps of the method). The ultimate goal is the construction of a model on which the different group members agree and which is an adequate representation of the policy issue they wish to tackle. In addition, it ought to provide sufficient information about what the best option will be.

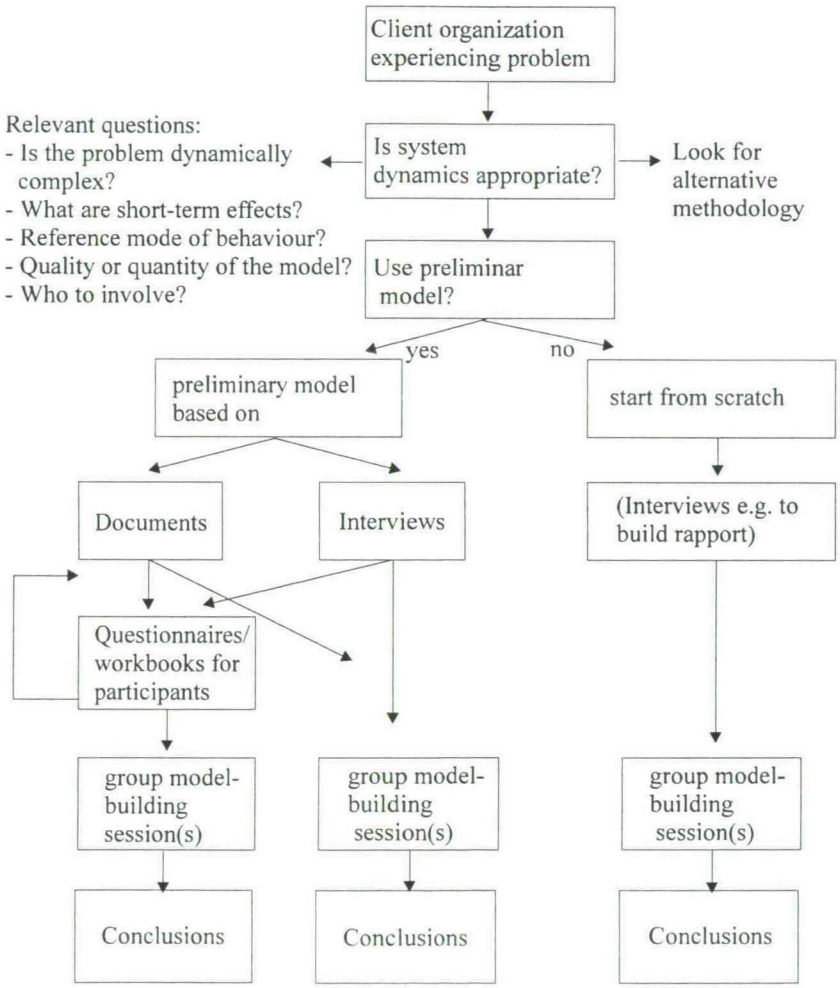
At the start, when the facilitator and a potential client group have their first encounter, it is important for the facilitator to decide whether in the given circumstances system dynamics is an appropriate method for dealing with the issue the client seeks to solve. Once it has been decided that the method is suitable, the next question to be answered is whether it should be a quantitative or a qualitative model. The first option has the advantage of tending to be more informative on various aspects, but it is also more demanding. It requires more time and is often more difficult to establish.

Next, the facilitator has to consider how the group should be composed: how many and who will be asked to join the model building session(s). Some guidelines proposed by Vennix (1996: 111-112) are that it is important to involve participants who have the power to implement the decisions that are taken and that the group has to be able to generate sufficient commitment in the organization they represent. In larger groups, there is less opportunity for group members to participate and this may influence the sense of ownership of the model and feeling of commitment. Vennix therefore suggests that if groups are larger than 10 to 12 participants, special attention has to be paid to the level of participation of the various group members.

As a following step, the facilitator has to decide whether it is useful to work with a preliminary model or to start with the group from scratch. A preliminary model is useful if time is limited and the model-building process needs to be stepped up. A second advantage is that it makes it easier for the group to start discussing the issue (Vennix, 1996: 113). However, there is also the danger that this preliminary model, which is constructed by the facilitator(s), is not accepted by the group members, in which case the model should be adapted. There are different tools to establish a preliminary model: interviews, document analysis, questionnaires, or workbooks (a more flexible way to present information and ask questions than questionnaires traditionally provide). Quite often, combinations of these tools are used for acquiring the right information to build a preliminary model. In some cases, the facilitator will start building a model with the group without the aid of a preliminary model (if this is the case, it is wise to speak to the participants individually beforehand in order to get an impression of the nature of the complexity of the issue involved). A useful way to start directly with the group is to have its members brainstorm about relevant variables for the policy issue and to ask them to contribute one of these variables for the construction of a causal loop diagram on a flip chart or with hexagons.(Vennix, 1996: 130

In most cases, the diagram will be elaborated in a few group sessions. In between the sessions, the model probably needs some tidying up. If there is a second session, a workbook that includes a summary of events from the previous session, a drawing of the model, and questions the model raised with the model builders, is an effective means of helping participants to prepare for this session.

Figure 3.1 Overview of the Group Model-Building approach



Source: Vennix, 1996: 103.

Requirements

Quite often, a facilitator who guides the client group in building a system dynamics model will need the support of assisting facilitators. Richardson and Andersen (in: Vennix, 1996:133) distinguish the following roles. A recorder, assists in registering the information the participants provide. The history of the process needs to be recorded.

The process coach observes the dynamics within the group and aids the facilitator in deciding on strategies for keeping the participants involved. The modeler is the expert on building system-dynamics models. The gatekeeper is a member of the client organization and responsible for the project. His task is to attend to the relations between the client and model builders. In addition, hardware tools are needed in the process: e.g., computers, flip-overs, paper, copying machines, tape recorders, white-boards, hexagons, and pens, and overhead projectors. Software tools are: brainstorming techniques, a system dynamics software program, questionnaires, and delphi techniques.

3.3.2 Compram

Compram is the 'Complex problem handling method' developed by DeTombe (1994). It is an interdisciplinary approach to cooperatively handling technical policy issues, or social problems in general. Compram only gives a rather general indication of the steps, methods, and tools that might be appropriate for tackling a specific issue. It is a participatory method in which different people with a wide variety of experiences and backgrounds in groups try to come to grips with a policy issue, especially its more cognitive aspects. The process centres on the exchange of different types of information (both scientific and everyday experiences) in groups but also by individuals. The information is fed into a communication model with the aid of the different tools and (sub) methods which the facilitator has selected (DeTombe, 1994). The selection of tools and methods is based on the available time, the financial resources, the characteristics of the issue, and the client group (5 to 15 people).

Goal

Compram is a method that aims to provide a framework for analysing and solving all sorts of cognitively complex policy issues. It guides the policy actors through the whole process, from the initial sensing of a policy issue to the evaluation of the solution chosen. The initial design of Compram focused mainly on the first sub-cycle of defining problems and primarily assists information handling (cf. DeTombe, 1994). Since then, the method has been further developed to encompass aspects of problem solving, implementation, and evaluation (cf. DeTombe, 1996). The idea of the method is that it only defines the different steps that need to be taken and leaves room for using different tools and methods. Maximum flexibility is its aim. It is a more time-consuming process than Vennix' group model-building method and may involve up to ten sessions.

Theoretical background

Compram is based on various theoretical approaches to problem solving, varying from cognitive psychology, computer science (theories about artificial intelligence), theories about group processes (e.g., theories about group think, collective blind spots, etc.), ideas of system dynamics modelling (which have been discussed above), and the social sciences in general (DeTombe, 1994: 242). From cognitive psychology, important notions on problem handling processes are derived. Selz, (1923) demonstrated that thinking is an active process supported by the use of rules. Furthermore, it is not a linear process: ideas about goals can change as a result of the positive or negative effect of the problem-solving methods that are applied. Newell and Simon (1972) DeTombe, 1994) compared the way humans process information with the way computers process information and indicated that problem solving is a search within a problem space that contains the different components of an issue. DeTombe argues that the notion of problem handling based on the functioning of the computer is too limited when it comes to handling complex issues. The issues cognitive psychology studies tend to be less complex, that is, they require less time, there is a start and end of the problem-handling process, and it is more clearly defined. Two concepts are derived from cognitive psychology that describe the thinking process: mental idea and conceptual model. The former refers to a rather vague idea of an issue, and the latter concerns a carefully formulated description of issue characteristics and the relations between them. Modelling can play a role in transforming the conceptual model into an empirical model (i.e., intervention).

Mode of application

Compram uses a step-wise process with seven layers to support the construction of a conceptual model of the issue, which is the main aim of the first sub-cycle of problem handling (see Figure 3.3). The model contains the following seven layers:

In the second sub-cycle, the emphasis is on changing the problem. Compram aims to create consensus about the conceptual model among group members. DeTombe distinguishes six moments in the issue-handling process which contribute to this aim. During the first step, the issue is approached as a knowledge problem. In order to be able to find adequate solutions for an issue, it is essential that one has a good understanding of it. Substantial knowledge of and insight into the different elements which together form the policy issue is required, as is knowledge of the impact of these elements on society. Experts are therefore invited to share their knowledge of the particular issue, with the facilitator. DeTombe (1996) points out that it is important for the experts to be neutral as far as the outcome of the policy issue is concerned. Once the experts have brought in information about the issue, it will be evident which the different parties/organizations involved are. Then, in the second step, these different

organizations are invited to join the discussion and share their views of the issue. System dynamics modelling is used in the first two steps.

Figure 3.2 The seven-layer model

I	Description in words of the problem
II	Definition of the concepts and phenomena of the problem
III	Verbal description of the theories, hypotheses, assumptions
IV	Graphical representation of the knowledge in knowledge islands
V	A semantic model, which is a graphic representation of the relations between the concepts and the phenomema
VI	A causal model, which is a graphic representation of the causal relations between the concepts and the phenomena
VII	A system dynamic simulation model. The system dynamics model is used in this sub-cycle as a discussion vehicle

Source: DeTombe, 1994: 246.

In the third step, attention is redirected from the more cognitive aspects to the socio-political ones. Both experts and representatives of stakeholders are invited to analyse the issue together and try to find a shared solution in terms of a problem definition, a policy goal, and a policy plan. The fourth step is an analysis by experts of the possible effects the policy plan or interventions may have. The expert analysis will partly be based on the information the stakeholders can provide. The fifth step involves the implementation of the policy plan. The experts, assisted by the stakeholders, will guide the implementation process. Finally, in the sixth step, the implementation will be evaluated. Figure 3.3 gives an overview of the two sub-cycles of the problem-handling process which entail the various steps described above.

Different methods like literature search, interviews, surveys, brainstorming, or a delphi method can be used to gather information and to assist the group-decision process in creating consensus on the definition, action plan, and implementation.

Requirements

A facilitator can use the following hardware tools: group support room, computers, flip-over, overhead, whiteboard printer, copy machine; and software tools like the hyper text system, system dynamic simulation software, spreadsheet, database, text-writer, and electronic mail.

Figure 3.3 The subsequent phases of the problem-handling process of Compram

First sub-cycle: *Defining the problem*	
phase 1.1	becoming aware of the problem and forming a mental idea of it
phase 1.2	extending the mental idea by hearing, thinking, reading, talking, asking questions
phase 1.3	gathering data and forming hypotheses about the problem
phase 1.4	forming the conceptual model of the problem
Second sub-cycle: *Changing the problem*	
phase 2.1	constructing the empirical model and the desired goal
phase 2.2	defining the action space
phase 2.3	developing hypotheses and suggesting interventions
phase 2.4	constructing and evaluating the scenarios
phase 2.5	implementing interventions
phase 2.6	evaluating interventions

Source: DeTombe, 1996: 3.

3.3.3 Strategic Options Development and Analysis

Strategic Options Development and Analysis (SODA) is a method designed by Eden et al. (1979, 1983, 1989, 1998a), to assist small groups (4 to 12 participants) in tackling both the qualitative and quantitative elements of complex problems. The single most important element of SODA (in its original form) is the technique of cognitive mapping: individual group members are assisted in developing their representation of a policy issue, its background, and its problematic character. So, a cognitive map is a model that represents how an individual perceives an issue. The map is a drawing of a web of ideas that are linked to each other. The pattern shows how these ideas are related: what are causes/means and what are consequences/goals.

In the second part of the process, SODA tries to unite the various cognitive maps. The method focuses on making people feel confident with a particular definition and policy option, more than on actually solving it. It is important for participants to extend their sense of ownership. So it is not only the content of the issue with which the method concerns itself. At least as important are the social aspects of policy issues (cf. Eden, 1994: 253). Eden argues that a careful balance needs to be struck between 'negotiated social order' and 'socially negotiated order'. Order has to be created in complex policy issues through negotiations. This implies that negotiations have to take account of 'the social history and anticipated future relationships between key actors' (Eden, 1994: 259). SODA pays a lot of attention to social relationships in order to succeed in bringing order to complex issues.

Goal

The method is directed at bringing together two sets of skills: traits of the facilitator which guide the process in such a way that the team works efficiently and effectively together, and, secondly, skills to construct a model and make an appropriate analysis of the information content the team members share (Eden, 1989: 21).The method aims to create commitment among policy actors to work together on a strategic map and together try to 'find' a 'portfolio of actions', 'goals systems', and 'key strategic issues'. The complexity of the policy issues is not reduced, for the method aims to broaden the definition of the issue team members have and to order it.

Theoretical background

The method is developed within the operational research paradigm, but it can be classified as a soft approach to O.R. SODA's policy issue orientation is constructivist in its outlook. The method draws heavily upon social-psychology, cognitive-psychology, and organizational theories. Kelly's theory of personal construct (in e.g., Eden, 1989: 25) provided the outline for the approach of SODA. This theory was originally developed for psycho-therapeutical purposes, but it is also useful for other problems where information handling by individuals or groups plays a role. It deals with individual information handling and the way individuals make constructions of reality in their minds. In these constructions, the individual gives meaning to events in order to make sense of his experiences and to acquire a sense of control of what is happening. SODA assists people in communicating their beliefs and values regarding a particular policy issue and captures them in a cognitive map. It is by making sense of situations that ideas for intervention are triggered.

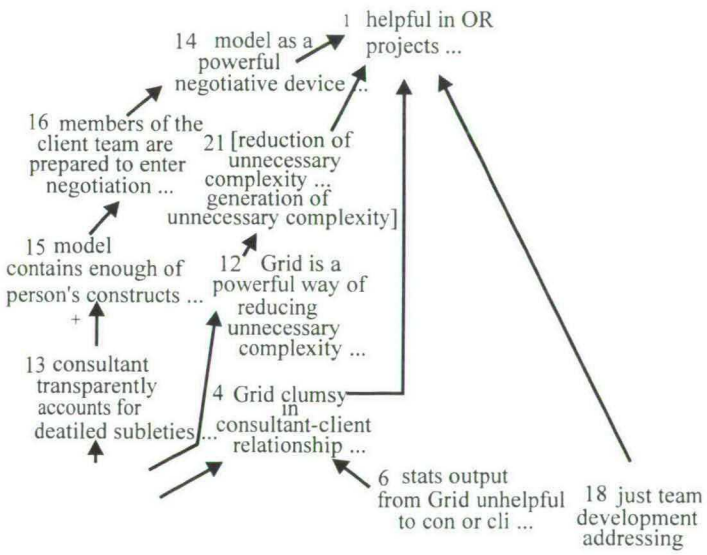
Organizational theory has also contributed to the methodology. For example, notions about individual decision-making in an organizational context have been derived from organizational theory as well as the idea that organizations are often marked by conflicting coalitions that compete for power and position.

Mode of application

The facilitator who has been asked by a client to assess a specific policy issue will, if possible, start the process by assembling the cognitive maps of individual team members. Important phrases are selected from interviews held with individual team members, and contrasting concepts are defined as a means of clarifying ideas. Subsequently, the main concepts are linked: arrows are drawn on a map, and thus the meaning of concepts is further clarified. Figure 3.4 gives an impression of a cognitive map. The concepts are phrased in such a way that they indicate a possible action. Furthermore, for every pair of linked concepts it must be clarified what is the goal/outcome/end and what the action/option/means (Eden: 1989: 29). In this way, a

clear order of concepts is established with the main goal at the top combining strings of concepts which are interlinked. A concept is both a goal for the previous concept and an action contributing to the following concept. Building models by means of cognitive mapping has the advantage that maps can be drawn and discussed while the client/team member is being interviewed. This enhances the sense of ownership and enables the facilitator to ask for clarifications. The designers of SODA have developed a computer program, called COPE, which enables them to store and analyse the often complicated cognitive maps with relative ease. COPE has become a very useful tool for the SODA method (Eden, 1989:37).

Figure 3.4 An extract of a cognitive map



Source: Eden, 1988: 42.

Once the model is sufficiently specific and encompassing, the facilitator will start working with individual clients and their cognitive maps. Eden developed a top-down approach and a bottom-up approach for discussing the maps. The first approach is a further exploration of the goal system, the concepts that are highest in the hierarchy. Possible higher goals are discussed and, subsequently, facilitator and client gradually work their way down the pattern of options for action.

In the bottom-up approach, the analysis of the map will commence at the bottom of the hierarchical pattern, and the facilitator and client gradually work their way up

towards the main goals, exploring each concept as a potential action. This first phase aims to help individual clients to 'change their minds' about the nature of the issue through a combination of self-reflection with respect to the map, and gentle negotiation with the consultant (Eden, 1989: 33).

Once the individual cognitive maps are sufficiently clear, they will be merged into one strategic map. This map is used in a workshop to negotiate a problem definition and/or necessary actions. Attention must be paid to the fact that the map should be a 'balanced representation of key team members'.

In order to be able to analyse the very extensive strategic map, the facilitator must cluster the different concepts in issue-arenas of 15 to 30 related concepts, representing one aspect of the policy issue. While clustering, the facilitator must not only pay attention to the structure but also to the content and process captured by the strategic map.[3] Furthermore, every single cluster is tested by suggesting a sensible sub-issue (Eden, 1989: 38). With the aid of these clusters, the agenda for the workshop will be prepared. The agenda should reflect the idea that problem structuring is a cyclical process.

Sometimes it may not be clear whether concepts that seem similar can be merged. The facilitator can ask for clarification in the workshop. This is why Eden suggests that the facilitator should start with a brief introduction to the system of key goals, the interrelated issues, key options, and assumptions. This activity aims to make clear to the group members that their thoughts are part of the larger map and hence part of the process. The facilitator will work at extending their sense of ownership to the whole model. After this round, the second part of the workshop will address the various clusters that have been analysed. The facilitator can again opt for one of the two modes (goal-oriented or action-oriented) of working with the team on the cluster maps. In this round, discussion is encouraged, and the maps will be elaborated and extended in the session. Quite often, a cluster map may call for further analysis of, for example, financial flows or market developments.

Requirements

Two facilitators, are needed as well as a suitable environment with hardware tools like a large computer display, personal computers, blank wall space, large sheets of paper, waterbased pens, COPE (software) and associative and creative thinking techniques.

3 The COPE software system offers various methods for analyzing and clustering concepts.

3.3.4 Strategic Assumption Surfacing and Testing

Strategic Assumption Surfacing and Testing (SAST) is a method developed by Mason and Mitroff (1981). It focuses on the analysis of key assumptions of particular policy plans. SAST aims to tackle complex policy issues in both public and private organizations.

There are four important principles that determine the design of the method. First, in order to be able to handle complex policy issues, there needs to be an adversarial context to elicit creative and good ideas. The second principle is that participative action is necessary to acquire as much relevant information as possible and to create the necessary backing for implementing the solution. The difference in perceptions and the adversarialness should ultimately be overcome, and unity should be established in order to develop one integrated and coherent action plan which carries sufficient commitment for a successful implementation. This is the third principle. Finally, the fourth principle is that SAST aims to increase managers' insight into their own assumptions about their organization, the policies they develop, their planning strategy, and their strategic policy issues.

Goal

SAST aims to elicit information from key stakeholders who are involved in a policy issue, and it aims to give them insight into the underlying assumptions of policies, plans, and/or strategies. Furthermore, it assists the negotiation between representatives of the organization on the various strategic assumptions and their relevance for the particular policy issue.

Theoretical background

SAST is very much a product of different disciplines. It is set in the traditions of planning and policy-making theories. But also behavioural sciences like social-psychology are among the sciences that influenced the designers of SAST. Dewey's ideas about the uncertainty that characterizes the world we live in are also relevant, an uncertainty that can never be fully tamed. Hence, the need to discover means to find the minimum certainty necessary to 'get the job done' (Mason and Mitroff, 1981: 19). A scientific method is viewed as the appropriate way. This method is based on systems thinking and is inspired by the ideas of Churchman and Ackoff, e.g., about the different stages in a problem-solving process. These stages, 'problem sensing, problem defining, formal modelling, solution derivation, implementation monitoring', are all viewed as part of an interactive process.

However, like the other methods discussed here, the design has also been influenced by its use in practice. 'Learning by doing' seems to be a valid adagio in this context.

Mode of Application

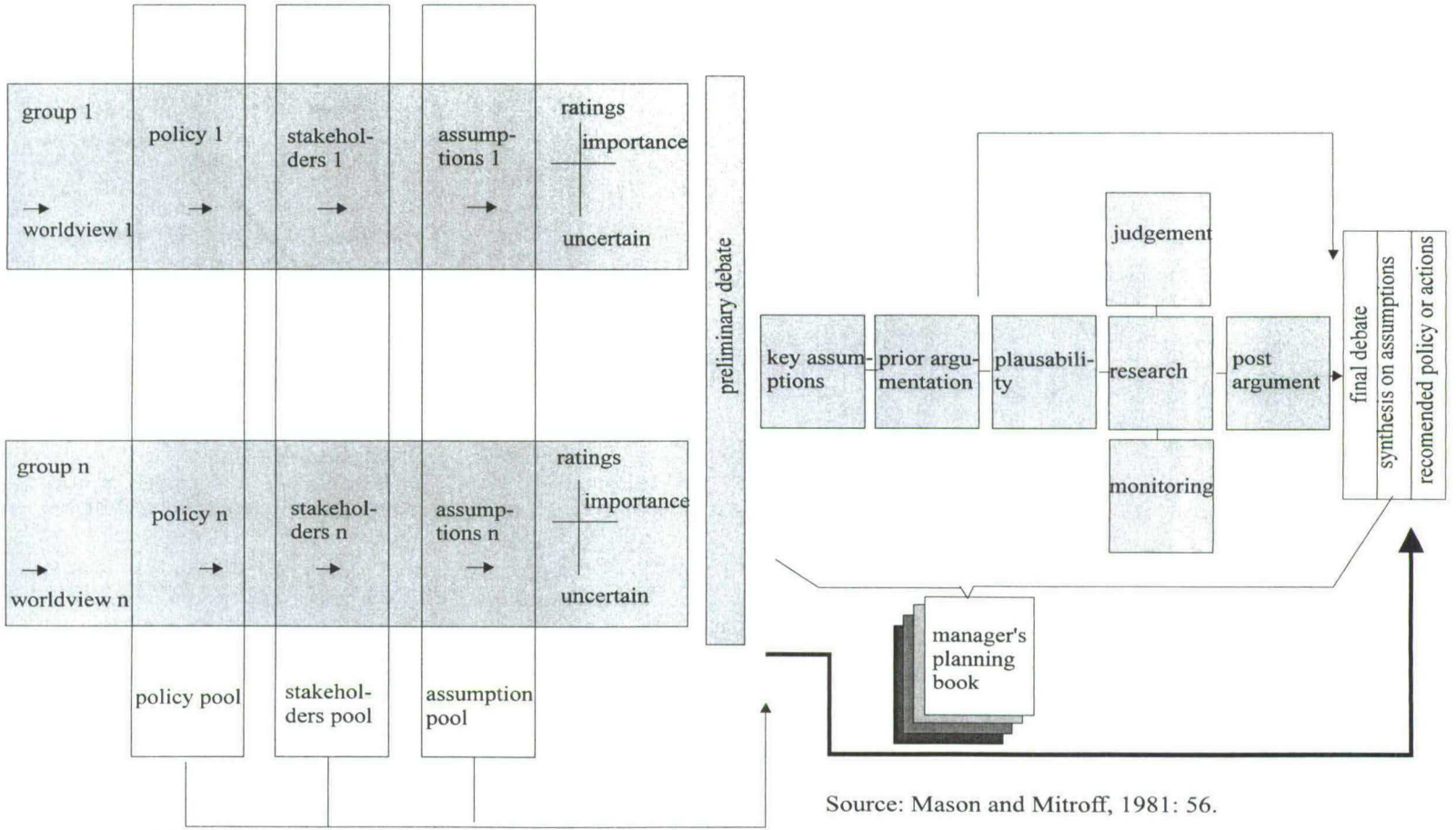
At the initial phase of the process (phase 1), the right people need to be selected who can provide the necessary information. Key figures are invited to join the group. Depending on the size of the group, it might be subdivided into smaller ones because those perform better according to Mason and Mitroff (1981: 39). Care should be taken that in the smaller groups interpersonal similarity is maximized in order to reduce the chance of conflict, whereas between groups a maximum difference in perspectives should be realized. There are different means by which individuals can be clustered. Mason and Mitroff (1981: 41) refer to techniques based on multivariate analyses of individual preferences for tasks and fellow-group members and a personality test based on Jungian psychology. Once the groups have been selected, they all are given an introduction to the main goals. The idea behind this is, that, generally speaking, organizations do not like members to contest the basic assumptions. So, by giving different groups adversarial orientations, they are more likely to contest basic assumptions of others. Furthermore, the fact that people work in a group bolsters their self-confidence and makes it easier for them to present deviant ideas or plans. Group sense is stimulated by inviting group members to give their group a name and briefly present their main point of attention.

In phase 2, the different groups meet separately and start identifying all the stakeholders who are a party in the policy issue. Subsequently, the group is asked to assign assumptions to these stakeholders, based on the idea that these assumptions would benefit strategy of one's own group.

Next, in phase 3, in every group the different assumptions are tested on their relevance for the policy issue. Each assumption can also be phrased negatively, and if this opposite does not make a difference for the chosen strategy, then the assumption is not relevant for the issue (cf. Mason and Mitroff, 1981:45-46). Each assumption can be rated on its importance for the policy issue and on the variable of 'certainty'. These scores can be drawn in a quadrant. Sometimes more sophisticated scales and rating techniques are used. If there is insufficient agreement among group members, the group discussion leader will encourage a dialogue to find out whether some members perhaps lack information. Then the group is asked to identify 6 to 8 pivotal assumptions.

In phase 4, there is a joint meeting of the different groups in which a dialectic debate takes place: every group gives a presentation of the policy of its preference and pictures the implications this policy may have. The other groups are given the opportunity to ask for clarifications of certain points. When all the cases have been presented, a round of discussion is opened and people are asked to challenge the underlying assumptions of other groups. The charts with the assumptions are then merged into one chart. This will assist the whole group in focussing their discussion.

Figure 3.5 An overview of the SAST Process



Source: Mason and Mitroff, 1981: 56.

The charts give a good insight into the prevailing beliefs and values regarding the policy issue and/or organization(s) the group members represent. In an assumption-negotiation process, assumptions that were being objected to by other groups are discussed and modified. First, the most threatening ones are modified, and the owner group is asked to check whether this modification is acceptable to them. This process proceeds until only assumptions remain on which no agreement is reached. These assumptions are then further tested and broken down into components, data (hard facts), and warrants (assumptions that link the data and claim).

The final phase, phase 5, aims at creating consensus among the group members. Cooperation is stimulated by asking the individual group members to suggest assumptions, which could resolve issues of contention.

The session(s) are followed by an analysis of the key assumptions, and additional data are gathered through other sources like: research approaches (e.g., financial analysis, econometric analysis, simulation models), judgmental approaches (e.g., delphi panels, scenario writing, focussed discussion group) and monitoring approaches (e.g., social indicators, event monitoring). However, these types of information are needed for a better understanding of the issues central to the organization. But they are not easy to interpret, which is why a 'planning information book' can be important. Apart from a prioritized list of the most critical issues SAST has uncovered, this book contains an assessment of the state of knowledge with respect to the solution of these issues, and an overview of current and planned activities to generate knowledge that contributes to solving the most important issues.

Requirements

A facilitator, various rooms where groups can meet, hardware tools like large sheets of paper, a slide or overhead projector, software tools like various techniques that can assist in splitting the group (e.g., personality test, multivariate analysis), brainstorming activities, additional information gathering-tools like scientific research, judgmental approaches (e.g., delphi's, expert conferences).

3.3.5 Soft Systems Methodology

Soft Systems Methodology (SSM) is perhaps one of the first methods that was developed to overcome the inadequacies of hard systems like O.R. and systems engineering. Since traditional systems engineering was unable to cope with highly complex policy issues, Checkland (1989) developed a method that would encompass the more socio-political and normative aspects of complexity. SSM aims to assist people in learning about the various aspects of a complex issue because often it is not at all clear what the issue involves. By offering new insights into an issue, SSM paves the way for action.

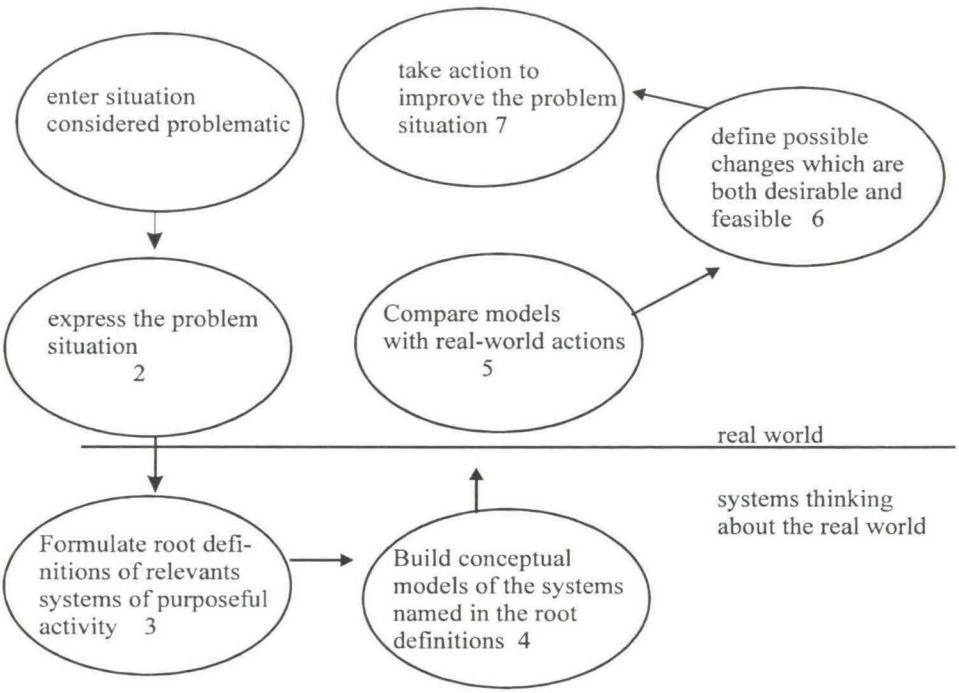
Goal

SSM aims to assist representatives of organizations in clarifying policy issues. By modelling the complex issue, conflicting objectives, needs, purposes, interests, values, and perceptions can be discussed and shared. SSM does more than only facilitating problem structuring. It explicitly focuses on defining solutions for certain problem situations. Moreover, SSM can be used for implementation purposes as well. Checkland (1989,1998; Checkland and Scholes, 1990) emphasizes that SSM is 'a learning, not an optimizing system'.

Theoretical Background

Soft Systems Methodology is inspired by systems engineering, which is a hard systems approach. Systems engineering involves objectivistic and teleological thinking. Systems are viewed as entities which refer to parts of reality. Systems engineering focuses on the purpose of a system or object and will then start building the system or object for which answers have been specified. So, first a specification of an issue is made, and then the engineer will develop the most effective and efficient way to tackle it. In the case of systems engineering, it is evident from the start what the characteristics of the issue are. It is not concerned with structuring complex policy issues in particular. As an example of a product of system engineering, Checkland (1989: 73) refers to the first landing on the moon. Although this was in many ways a very complex project involving highly sophisticated scientific knowledge and a complicated network of organizations, the main goal of the project had been clearly defined by the US president. However, the objective is not always as clear-cut. Soft Systems Methodology was developed to clarify these issues and assist people in learning about the various aspects of 'reality'. The systems SSM is concerned with, are not objectivistic in their outlook but are the product of human interaction and interpretation. They are learning devices. SSM is a means to learn about what people define as purposeful action. The purpose people ascribe to actions is determined by their 'Weltanschauung'. Weltanschauung refers to personal values that are a product of people's experiences. So different people can have different perceptions of systems, due to differences in their weltanschauung. Because perceptions are often diverse, SSM focuses on group processes in order to give people an opportunity to familiarize themselves with the views of others. Preferably, various representatives of the client organization(s) actively take part and work together on an issue that needs clarification. SSM teaches by comparing models of purposeful action with activities that are going on in the real world.

Figure 3.6 Conventional 7 Stages Model of SSM



Source: Checkland, 1989: 84.

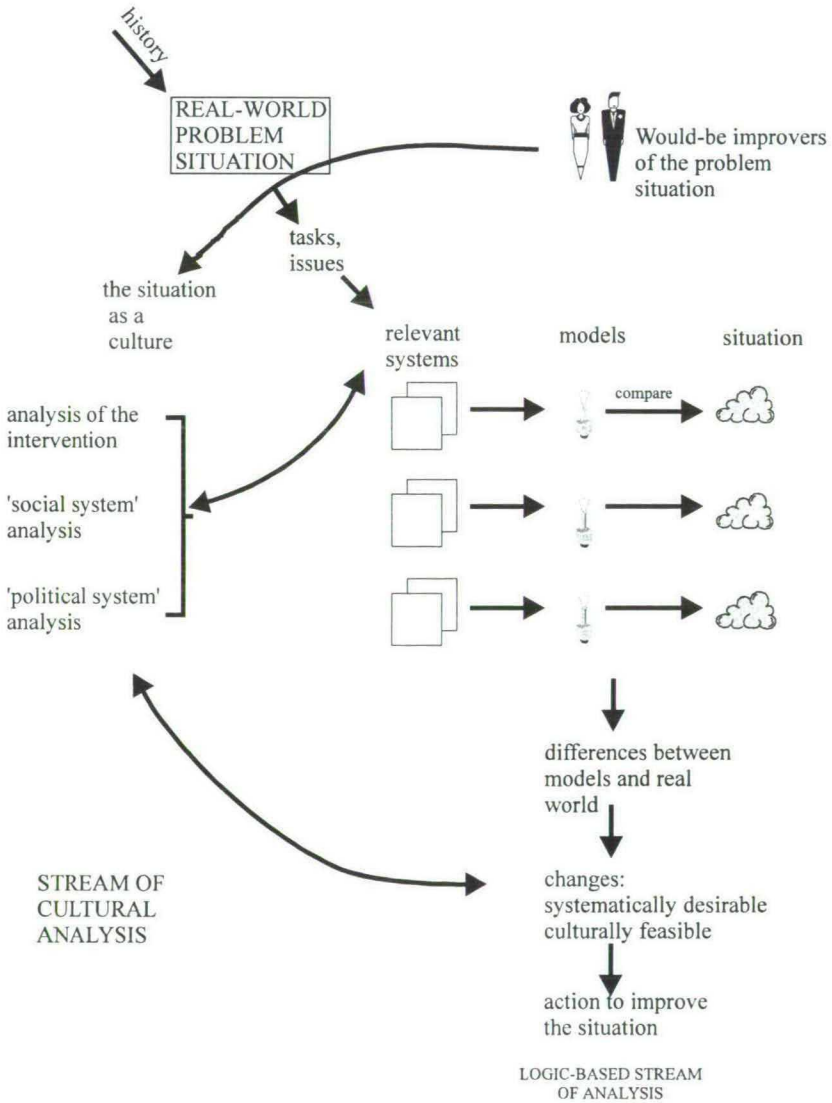
Mode of application

SSM was introduced in the seventies, but its designers never stopped adapting the methodology. In Figure 3.6, the traditional seven stages of SSM are presented. However, since it suggests that these seven stages are always followed in this sequence Checkland and Scholes (1990) presented a more recent style of working (see Figure 3.7).

In the more traditional application of SSM, a distinction is made between the stages one, two, five, and seven, which focus on the real world as such, and stages three and four, which concentrate on systems thinking about the real world.

Figure 3.7 presents an issue with a particular history and two interacting streams of inquiry for improving that issue: a logic-based stream and a cultural based stream. Both will be discussed below.

Figure 3.7 Soft Systems Methodology in two interacting streams



Source: Checkland and Scholes, 1990.

The logic-based stream of analysis assumes that a number of human activity systems that characterize the issue are 'named, modelled and used to illuminate the problem situation. This is done by comparing the models with perceptions of the part of the real world being examined' (Checkland and Scholes, 1990: 28). In order to facilitate the naming of sub-systems, the mnemonic CATWOE is used in order to define root definitions. CATWOE stands for:

C =	customer:	Who would be victims/beneficiaries of the purposeful activity?
A =	actor:	Who would do the activities?
T =	transformation process:	What is the purposeful activity expressed as: input → T → output?
W =	weltanschauung:	What the world makes this definition meaningful?
O =	owner:	Who could stop this activity?
E =	environmental:	Wat constraints in its environment does this system take as constraints given?

Source: Checkland and Scholes, 1990.

The transformation process is the heart of the root definition. The other elements are important in order to enrich the understanding of that which needs to be transformed. A root definition has the following form: "a system to do X by Y in order to achieve Z' (Checkland and Scholes, 1990: 36). After naming human activity systems,[4] models are made of verbs that indicate the various activities that are necessary to achieve the transformation process as it is defined with the aid of the CATWOE elements. As a rule, 7 ± 2 activities are defined for one transformation process. Subsequently, different activities can be further assessed as a source for a root definition. Activities are connected by means of arrows. The activities are linked in order of contingency. These human activity systems should be monitored as far as their effectiveness, efficacy, and efficiency are concerned. So, for each system the participants have to define what constitutes purposeful action: what are the criteria for effectiveness, efficiency, and efficacy. With these criteria, it is possible to observe the system and see whether it works in accordance with the criteria. Human activity systems are inter-linked in a stratified order. The assembled systems, which consist of various layers of (sub)systems, may contain as many as 200 activities. Discussion can also be encouraged by comparing models based on different world views. The aim is to find a divisor for the various interests it represents.

4 Checkland and Scholes refer to human activity systems as holons.

The second parallel stream of analysis is the cultural analysis: the following three analyses are carried out and their results combined. Analysis one concerns the intervention in the issue: the client and would-be problem solvers are listed and help choosing the relevant systems in the logic driven stream of enquiry. Analysis two concerns the issue as a social system. Different social roles are discussed, as well as their expected behaviours (norms), and judgement is passed on the performance of social actors in their roles (value). In the third analysis, the political aspects of the issue and the disposition of power are examined. These three analyses are complementary to the logical stream of thinking. They are on-going activities, for the three analyses concern dynamic entities.

The two streams of analysis result in a definition of the transformations that need to take place, and subsequently their implementation is debated. The SSM cycle can also be used for this.

Requirements
Hardware tools which are used are whiteboards, flipchart, pencils and paper. An important software tools is the CATWOE analysis.

3.4 Comparing methods

The five problem-structuring methods described in the previous section are all examples of soft method approaches. Rosenhead (1989: 13) sees such soft methods as examples of a new paradigm in the operational research tradition. All five methods are influenced by system thinking. Group model-building and Compram use system dynamics; SODA is inspired by operational research; SSM has systems engineering as its source of inspiration; and SAST refers to system thinking in general. They combine the system approach with theories from social and behavioural sciences. In addition, they assist group-decision making. Another characteristic they share is their participative approach. The methods directly involve the policy makers who are responsible for the policy issue. They assist and direct group processes which involve formulation, debate, thinking, and rethinking a policy issue. All five methods prescribe which route to follow by a sequence of stages, but they do not necessarily have to be followed in a set order. Flexibility is allowed and even desirable, as especially Eden (1989) and Checkland (1989) point out.

Another important feature of the methods discussed here is that they model the issue they are interested in. These models are important means of communicating complex issues to participants. The graphical language that is used is more accessible than mathematical notations would be, but they differ in what they represent. For instance, in SODA cognitive or group mapping is used as a tool to construct a model

that represents the meaning people attach to concepts, whereas the system dynamics models of group model-building and Compram use causal diagrams. The arrows in the maps represent causal relationships between variables (Vennix, 1996: 117, 125). The modelling approaches are similar, but the models represent different concepts and relationships between these concepts.

There are additional distinctions between the methods. Whereas most methods involve actors which are stakeholders, Compram includes experts in the process of problem structuring. More than the other methods Compram is oriented towards structuring the cognitive aspects of the policy issue. SODA and SSM seem to be more concerned with interaction and encouraging a shared understanding of the actors involved than with the information exchange as such. All methods, however, combine a process- and content-orientation, but some are more content-oriented, and others put more emphasis on process aspects. There are also differences in emphasis on tangible outcomes (concrete decisions and/or actions) and other effects (individual learning, mutual acceptance).

The methods differ to some extent in their scope on the handling of complex policy issues (cf. Hofman,1995). Group model-building addresses problem structuring but also looks at potential solutions. Compram, originally developed as a device that concentrated on problem structuring, has been developed into a tool that can cover the whole policy-making process. SAST concentrates on assumptions regarding potential solutions to policy issues, before addressing the initial problem definition. In SODA, the emphasis is on problem structuring, but like SAST, the method takes the participants from problem structuring to exploring solutions. SSM is an action-oriented approach that covers the entire process from problem structuring to the implementation of plans. None of the methods exclusively addresses problem structuring as such.

The five methods have been developed in reasonable isolation. The designers of SODA and SSM do not see the theoretical foundation of the other's theory (Eden, 1990: 91). SSM emphasizes a holistic and system approach to policy issues, whereas SODA focuses more on the micro-level of policy-making activities by individuals and groups in organizations. Facilitators who tend to be experts in one method are rather sceptical about the merits of combining theirs with other methods (cf. Vennix, 1996). They are also inclined to believe that learning to use one method is already such a difficult task that it would be impossible to try and become an expert in several methods. There are nevertheless proponents who believe that combining elements of various methods can be productive. Lane and Oliva (1994), for instance, advocate combining SSM and systems dynamics in order to overcome their respective weaknesses. They detect an increased interest among proponents of systems dynamics to incorporate tools or aspects of other methods. Recent projects of action research in which two methods are combined are an intervention in which Ackermann, Eden and Williams (1997)

combined SODA and System Dynamics modelling. The SODA-map was used as a blueprint for the SD-model which provided more detailed and quantitative information about the issue. In another case SODA was combined with a multi-criteria evaluation approach. With SODA data was gathered and alternative options were chosen and the software package VISA was used for evaluating implementation (Belton, Ackermann, and Shepherd, 1997).

Although methods should be flexible enough to adapt to particular circumstances of a policy issue, there are limits to this elasticity. Some methods are more useful for certain problem issues and certain styles of policy making (as set by the culture of the organization(s)) than others. For instance, SAST presupposes that there is sufficient liberty among the stakeholders to discuss openly underlying assumptions of a particular policy plan. This presupposes a certain level of open-mindedness and acceptance of criticism. This is not always feasible. In addition, Rohrbaugh and Eden (1990: 47) point out that facilitators ought to have insight into (inter) organizational processes and various methods to be able to adequately match these two.

To complicate things even further, Cropper (1990: 30) points out that there are significant differences in practice in how one method is applied by various facilitators. As Cropper points out 'method, then, is not all'. There are sources of influence like the facilitator and the surroundings, which affect problem-structuring interventions. These will be discussed in section 3.6.

3.5 Choosing a method

Five methods have been described which can assist policy networks with structuring complex policy issues. In our study, gaming/simulation[5] will be used as a research environment (see the next chapter). Hence, the method we will assess should comply with the conditions a game/simulation stipulates: time will be an important constrain. The Compram and SAST methods seem to be the least appropriate for this study. Compram combines different techniques. It focuses predominantly on cognitive complexity and demands a substantial time investment. Furthermore, experts play an important role in it, which probably makes it more costly. Compram has been developed more recently which is why there is limited experience with its practical use, an additional reason for an alternative choice. SAST focuses more on solutions than on problem structuring in the strict sense. It first assesses policy options and their underlying assumptions, and subsequently, discusses the participants' perceptions of the issue. SAST is therefore a method that reconstructs rather than structures policy issues and is therefore less appropriate.

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5 Gaming/simulation can also be used as a problem-structuring method in its own right (cf Chapter 4).

Table 3.1 Three problem-structuring methods

	SODA	SSM	Group model-building
what is modelled?	- individual perceptions of an issue - via constructs: subject - active verb object forming hierarchical chains of means and goals	- human activity systems directed at improving the issue (sub)systems: actions directed at the transformation of the issue in a particular output	system dynamic models contain causal loops or flow diagrams: variables are connected through loops and feedback loops which represent causal assumptions of the issue from a systems point of view: models can be quantified
subjective vs objective	- people give meaning - not the reality, but reality as it is experienced is modelled	- subjectivity is essential for SSM: central are mental processes rather than the object of those processes.	aim is intersubjective knowledge, acknowledgement of multiple realities
aim of modelling	- give insight into perceptions - realize consensus, a common portfolio of actions - facilitate negotiation	'*learning*' through continuous process of questions and related actions - resolve - facilitate communication – accommodation of interests	- increase team learning and promote insight into strategic issues - create acceptance and commitment decision - consensus
who participates (when)	individuals/groups 3 t/m 10 of key persons in the organization/s	groups smaller than approx. 40. (Several parallel groups are possible)	group size differs: 10-12 is standard but they can be smaller/larger depending on the issue
role facilitator	- important role in structuring issue - makes team map and negotiates with group members - in practice, external adviser	- can be internal or external facilitator: tends to be external - project team can be balanced combination of intern. & extern. repres. - managers can use it in daily practice	- crucial role in managing group process - group facilitator and SD-builder - project team

This leaves us with three alternatives. The above table presents an overview of important characteristics of the other three methods. The system dynamic models that are constructed in group-model-building sessions are more specific than those of SSM and SODA. Furthermore, SSM and group model-building require more rules in order to build their maps. The SODA approach has the advantage that its mapping style conforms more to the way people think and express themselves than the other two methods. This is more in accordance with constructivist theory and has practical advantages for its application. Furthermore, SSM focuses more explicitly on the transformation of the issue and, hence, on policy development whereas SODA is oriented more on problem structuring, although it also includes policy development. Given the three dimensions of complexity, SODA is also to be preferred over group model-building because system dynamic models emphasize cognition more. The method we wish to examine will be tested in a gaming/simulation, and an intervention based on SODA can be introduced in an experiment more easily.

3.6 Intervening variables when applying problem-structuring methods

In situations in which a method of problem structuring is introduced to aid the policy-making process, there are, apart from the method itself, some additional variables which may influence the problem structuring. These will be briefly discussed here.

The facilitator is the person who applies the method, and as such he or she is an important source of influence to be reckoned with. His personal qualities and skills influence the outcome of the intervention strategy. No matter how sophisticated a learning method may be, a bad teacher can spoil everything. It is therefore evident that the person of the facilitator matters. As pointed out above, facilitators using the same methods differ in the way they apply them. Moreover, 'there are certain significant features of practice that may be shared by consultants using different methods' (cf. Cropper, 1990: 30). Facilitators have different skills, knowledge, and views, so their use of intervention methods and tools will partly depend on such individual characteristics.

A choice can be made for an internal or external facilitator. A possible advantage of an internal facilitator may be that he is familiar with the different participants and knows the context in which the issue and policy process is set. However, as Mayon-White (1990: 81) points out, an external facilitator is to be preferred because assisting group processes is a very demanding task and requires persons with special knowledge and experiences in this field. Moreover, an external facilitator has the additional advantage of being more independent and will therefore probably be viewed as more trustworthy than a network participant.

Another factor concerns the physical surroundings in which groups meet. In the many sessions of group problem solving they facilitated, Eden (1990), Huxham (1990), and Hickling (1990) experienced, that the physical surroundings are an important factor to be taken into consideration. For instance, SODA (Strategic Options Development and Analysis) hard- and software can be used to assist group-decision making. The ideas of the participants are fed into the computer and projected on to a big screen, where a big map is constructed of the issue that is being discussed. This screen is important in making participants feel that the map they built, is owned by them and not something handed out to them by some expert advisor. So the screen aids in acquiring a sense of ownership and hence stimulates commitment and consensus. Apart from the screen, computers, and software, the ideal environment for SODA will also require facilities like flip charts and/or whiteboards. These facilities can be instrumental in documenting the history of the process, which is also important for building ownership. The use of colours and symbols in mapping problems is also important. They not only help the participants in managing the complexity of content but also have a decorative and entertaining function and thus assist in keeping participants interested and attentive (Eden, 1990:158). Lighting and darkening rooms can assist in drawing people's attention to a particular aspect of the process. For example, spotlights can be used to draw attention to the round table where social interaction takes place and thus stimulate communication rather than draw attention to the screen and hence the model. Indeed, if a table needs to be used, a round table should be preferred. All these facilities can give people a sense of being away from their daily workplace. A real move away from their usual surroundings can give them an additional 'breath of fresh air' (Eden, 1990:156). Not only the tools facilitators use are relevant but also the design of the room itself. Facilitators have experienced all too often that the room they were working in was either too small or too large for the group or was lacking facilities to attach the whiteboards or flip-overs to, or its furniture could not easily be moved around. These may seem trivial aspects, but they influence the performance of both the facilitator and participants engaged in any group-decision process. These aspects are 'interwoven with the philosophical, and hence the intellectual basis of the approaches' (Huxham, 1990: 167). The problem-structuring method alone, therefore, does not determine the outcome of the intervention.

3.7 Quality criteria for problem structuring

The complexity of policy issues is a reason for policy actors to use a formal method as an intervention instrument to assist the problem-structuring process. There seems to be a growing awareness that problem structuring - which has been a rather neglected topic for a long time (see also Chapter 1) - plays a decisive role in policy-making. Dunn

(1994: 182) sees problem structuring as the most crucial but least understood aspect of policy analysis. Dery (1984: 2) also emphasizes that problem structuring, although acknowledged as essential by methodologists, is neglected by most public-policy analysts and policy makers. Problem-structuring methods claim they reduce or manage complexity and thus improve the quality of problem structuring in policy making both in terms of the process and policy outcome. In order to be able to assess methods that assists problem structuring, it is necessary to define quality criteria to measure the effects of methods.

Van de Graaf and Hoppe (1992: 433, following Dery, 1984) suggest the three following criteria for problem-structuring products:

1. the problem definition must be solvable and fit a solution that is realistic;
2. the problem must be defined with an intervention perspective in mind; it must be brought into line with what is meaningful action for organizations;
3. the problem definition should offer a genuine chance of improvement of the (problem) situation in future.

These rather general criteria focus on the outcome of problem structuring. They do not differentiate between alternatives that satisfy all three criteria. Furthermore, they are insufficiently sophisticated to deal with the different types of complexity which mark policy issues.

Other criteria are offered by Geurts and Vennix (1989). They define the follo-wing criteria for analysing complex policy issues. First, analytical criteria deal with the cognitive side of the issue. Premature closure of the issue should be avoided. Furthermore, a broad policy perspective is required. Methods dealing with complex issues have to be both flexible and hybrid in order to adapt to changing perceptions of policy makers and to arrange for more scientifically based information and more subjective information. Deductions need to be logically sound. A second category Geurts and Vennix define are process criteria, which are better tuned to influencing the social-political and normative complexity of policy issues. Complex issues require a step-by-step approach and the active involvement of those who have a stake in the issue so they can contribute information. Communication of the different perceptions of stakeholders is also essential. Finally, the most important criterion, which is the intended result of every problem-structuring method they mention is, 'problem-solving rationality'. Methods should encourage thinking (cf. Mason and Mittrof, 1981).

Table 3.2 Criteria for analysing complex policy issues

analytical criteria	- broad view of the content - broad policy perspective - flexible and hybrid method - logical deductions
process criteria	- step by step approach - pluralistic participation - communication is stimulated
intended result	- support of thinking: improving the rationality of problem solving

Source: Geurts and Vennix, 1989: 48.

The analytical criteria correspond with the 'harder' approach to problem structuring mentioned in section 3.2 whereas process criteria correspond with the softer approach. The recommendation that the methods used should be hybrids implies that they should contain elements of either of these two approaches. Reality is often too rigid for an unequivocal application of all these criteria (Geurts and Vennix, 1989). Depending on the sort of policy issue, policy makers and analysts will make a selection that fits the issue they are dealing with. Their choice is determined by conditions like financial means, time, and normative complexity, that is, the norms, values, and rules that determine the settings for policy-making processes in inter-organizational networks.

Another set of criteria was introduced by Joldersma (1992, 1993). These were inspired by the main characteristics of policy theory and related to criteria Hoogerwerf (1987; 1992) has defined for the quality of policy: namely, rationality and legitimacy. Rationality refers to purposiveness, efficiency, effectiveness, value rationality, and empirical causal thinking. Legitimacy refers to the level of acceptance of those who are involved in some way or another.

In her analysis, Joldersma defined the following variables as aspects of problem perceptions:

- content
- precision
- complexity
- scope
- fundamental character (of policy).

These five influence both the rationality and the legitimacy of policy (Joldersma, 1992: 156). They are more oriented on cognitive aspects of policy issues than on socio-

political or normative aspects. In our perception, content, scope, precision, and fundamental character can be considered as aspects of cognitive complexity.

A third approach that could be valuable in grasping which quality criteria can indicate an improvement in problem-structuring, is offered by Lyles and Thomas (1988). They researched in which way successful issue formulators differ from unsuccessful ones. Table 3.3 gives an overview of their results.

Table 3.3 Characteristics of (un)successful strategic issue formulaters

	contextual	defining	responding
successful	- generate multiple scenarios of worst case - many past experiences with unanticipated events	- multiviews of problem's nature - strong discussion or debate - tolerance of ambiguity	- past success programmes - newly designed programmes - unlearning - action taking - discrimination skills - flexibility
unsuccessful	- formalized environ-ment scanning and low scenario generation - few past experiences with unanticipated events - centralized	- single view of problems' nature - consensus or mandated - strong need to reduce ambiguity	- past success programmes well developed - rigid - poor discrimination skills

Source: Lyles and Thomas, 1988: 141.

Policy makers who are successful in problem structuring have had many past experiences with unanticipated events, which helps structure a new issue. Furthermore, regarding the realization of an issue definition, they use inquiry methods that generate a multiview of the issue, encourage discussion, and tolerate ambiguity. Overall, their responses are overall directed at adopting past success programmes, designing new ones, and unlearning past programmes. They use different thinking frameworks. Depending on the situation, they make a selection from their repertoire. Although these criteria that used for strategic intra-organizational issues and, in part, focus on characteristics of policy makers themselves, they nevertheless provide useful information for establishing quality criteria for problem structuring of other complex issues. The criteria address predominantly, but not exclusively, cognitive compexity.

In accordance with Geurts and Vennix[6], a broad perspective of the issue is advocated. Furthermore, Table 3.3 indicates that an effective problem-structuring method should stimulate debate and tolerance of ambiguity.

In addition to more theoretical perspectives, criteria can also be deduced from the aims and experiences of method designers. In this chapter five methods were discussed that support problem structuring. They advocate approaches that have some common characteristics. They can be identified as criteria of problem structuring. All advocate the relevance of a participatory approach: it is important to actively involve the different stakeholders in the process. Mason and Mitroff explicitely add to this the importance of a democratic nature of the process. Moreover, the methods use models to represent various ideas policy actors have of an issue in order to obtain a rich view of the issue, and share experiences and ideas. Modelling involves not only generating ideas but also linking ideas to make clear how variables are related and certain developments affect others.[7] Commitment and consensus are mentioned by Vennix (1996) and Eden (1994, et al. 1998a) as important goals of their methods.

The quality criteria we wish to use in this research should be responsive to the different types of complexity defined in section 2.2.4 .

Various criteria have been defined above that relate to cognitive complexity. Virtually all approaches, whether they are predominantly inspired by theory or practice, indicate that a problem-structuring method should broaden the participants' view of the issue. Geurts and Vennix (1989) - following Mason and Mitroff - refer to it as a 'broad view of content' and Lyles and Thomas (1988) advocate 'multi-views of problem nature'. We will redefine this criterion as 'aspect differentiation' (cf. Rohrbaugh and Eden, 1990). Policy makers need to acquire a rich perspective of the issue that encompasses the various aspects and ideas stakeholders hold of the issue. Aspects are building blocks that can be combined into ideas, and ideas constitute an issue. The greater the diversity of aspects that are attributed to an issue, the higher the level of aspect differentiation. The criterion of aspect differentiation captures the need for divergent thinking when a group of actors is trying to unravel a particular issue. A narrow perception of an issue may lead to group think and hence to a type of policy that does not genuinely match the issue one faces.

Cognitive complexity cannot be managed by divergent thinking and richness of aspects alone. Order and transparency require that divergent thinking is balanced by integrating forces aimed at bringing together the different aspects and making sure that

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6 Both the criteria Lyles and Thomas and Geurts and Vennix present are partly based on the work of Mitroff.

7 In system dynamics models feedback loops play an important role. They refer to the linking of variables which indicate that the affected behaviour in turn has consequences for the initial behaviour.

the very broad map which is being drawn of an issue will change and transform itself into a more focussed and cohesive representation of the policy issue aspects. The more the problem-structuring process proceeds, the more centrifugal motions should replace the centripetal motions and result in a map of the policy issues that is more meaningful to the policy actors. Our second criterion which addresses cognitive complexity is 'aspect integration'. This refers to the extent to which various aspects are combined and linked into ideas and ideas into an issue. In the definition of problem structuring that we introduced in Chapter 2, the notion of 'building aspects' was introduced. The criterion of aspect integration concerns these 'building' activities. By selecting and combining aspects, more encompassing strings of ideas arise. By linking aspects effectively, order and transparency are created. The need for integration is recognized by both method designers and theorists (cf. Mason and Mittrof, 1981; Hart, 1985; Rohrbaugh and Eden, 1990: 45; Massey and O'Keefe, 1993[8]).

Besides cognitive complexity, a particular method needs to address the socia-political complexity of an issue. Criteria which concern the social-political complexity of an issue and which were introduced above are pluralistic participation (Geurts and Vennix, 1989), broad participation and democracy (Mason and Mittrof, 1981), commitment and consensus (Vennix, 1996; Eden, 1994), and strong discussion/debate (Lyles and Hammer, 1988). These various criteria address the contribution different stakeholders can make to problem structuring. Methods of problem structuring should ensure that the different interests which have a stake in the issue are being considered. Furthermore, they intend to increase the level of involvement of a stakeholder. 'Balancing interests' and 'participation' are the two criteria that can be derived from the qualities problem-structuring methods require.

'Balancing interests' can be defined as the level at which the actors in the policy network consider and weigh the various interests involved. Ignoring particular interests, or immediately paying skewed attention to one particular interest is not in accordance with the participatory nature of the problem-structuring methods discussed in this chapter. In their deliberations, the interests need to be addressed and weighed. In a participatory policy process, premature disproportionate attention for one particular interest at the expense of other interests involved is undesirable. The organizations or people behind the interests involved represent valuable information and/or support which can contribute to policy making. Hence, it is important to pay attention to the various interests. It is not the realization of win-win solutions which is its goal but the avoidance of a disregard of interests. Summarizing, 'balancing interests' refers to the

8 Massey and O'Keefe defined five attributes to assess problem structuring. One of which is structure and includes integration of aspects.

level at which policy makers weigh the interests of the various stakeholders involved in the issue. Problem-structuring methods aim to stimulate sharing perceptions of issues.

'Participation' can be defined as the level at which a policy network actively supports the policy-making process in general, and problem structuring in particular. This involvement can have different forms: people can contribute in terms of ideas, investing energy and/or offering financial support. Methods and techniques, like the oval mapping technique, aim to raise the active involvement of stakeholders in problem structuring. A higher level of participation contributes to possibly more complete framing of the issue (more ideas may be generated as a result of a more intense involvement) and a wider support for the policy.

The third dimension which characterizes complex policy issues is normative complexity. If an issue is highly normatively complex, the norms and values the participants hold conflict strongly. Rules and regulations organizations hold are expressions of norms and values. In order to manage normative complexity, policy actors have to be persuaded to recognize each others position. Lyles and Hammer (1988) point to the importance of 'tolerance of ambiguity'. The quality of problem structuring is raised when opposed norms and values are acknowledged. Furthermore, 'strong discussion/debate' can also affect normative complexity, for it also aims to juxtapose extreme positions and thus contrasting norms and values (cf. Mason and Mittrof, 1981). A debate is of little effect if participants do not listen to each other. Furthermore, mutual understanding is a requirement for reducing the level of contention between opposing norms and values. Our fifth criterion is therefore 'communication'. It refers to the level of cognitive and mutual understanding among participants. Participants need to comprehend the debate to be able to make a valuable contribution to it. However, debates are never information interchanges pur sang, but they also - and perhaps more profoundly - involve an exchange of emotions. There needs to be a readiness among the participants to accept and respect each other as valuable contributors. Through good communication, trust is raised. Without trust, the effectiveness and legitimacy of the process is jeopardized.

Furthermore, normative complexity can be influenced by managing the debate. Related criteria which were mentioned above, are 'a step by step approach' (Geurts and Vennix, 1989) and 'managerial mind supporting' (Mason and Mittrof, 1981; Geurts and Vennix, 1989). The sixth quality criterion is 'process management'. This is the level at which a debate is organized and structured. A well managed process involves offering participants opportunities to contribute, challenging them to define and/or pursue the goals, and to check whether there is support from the rank and file of the various organizations involved (cf. Gray and Wood, 1991). Process management can be fruitful for a good policy. A parallel can be drawn with the role of a facilitator who is important to the application of SODA. Policy making also requires organization and coordination.

The way the process is managed is therefore an important characteristic of problem-structuring.

3.8 Summary

In this chapter, methods for facilitating the structuring of policy issues were discussed. A distinction was made between hard and soft methods. Hard methods fail to grasp the different aspects of the complexity of policy issues; therefore, only soft methods were discussed. The methods which were addressed are Group model-building, Compram, Soft systems methodology (SSM), Strategic assumption surfacing and testing (SAST), and strategic options development and analysis (SODA). The methodology for all five methods is based on combinations of various systems thinking approaches and other theories from the social and behavioural sciences. They all involve a sequence of stages which do not have to be followed strictly but, depending on the characteristics of the policy issue, can be applied in different sequences. They all make use of different tools and modelling techniques. They differ, however, in what they model. In this research, SODA will be used to assist problem structuring. (This choice will be further discussed in Chapter 5.)

When introducing methods to facilitate problem structuring, there are other factors which influence the process. An important factor is the facilitator. Different facilitators will obtain different results on the basis of the same method. Furthermore, a greater number of environmental conditions, like the space(s) in which the meetings take place, are also relevant to the outcome. Finally, six quality criteria for problem structuring were defined which will be used for testing SODA in a game/simulation.

4. Gaming/Simulation as an experimental environment: the research design

4.1 Introduction

The previous chapter introduced some characteristics of problem-structuring methods and described five of these methods in detail. The aim of this research is to examine whether and how a problem-structuring method based on Strategic Option Development and Analysis, affects the quality of problem structuring in inter-organizational policy networks. In order to assess the quality of problem structuring, six criteria were defined.

This chapter addresses the question of how we will explore whether a technique based on SODA contributes to the quality of problem structuring in participatory policy processes. Gaming/simulation will be used in an experimental design in which the effect of an intervention based on SODA will be tested. The research design has implications for the way the method can be applied which is why this chapter precedes a more elaborate description of SODA in Chapter 5.

First, section 4.2 introduces gaming/simulation which provides the experimental environment in which a SODA-based intervention will be introduced and in which the data on problem structuring are collected. In section 4.3, the game/simulation BANS is discussed briefly. Section 4.4 presents the outline of the research design. Section 4.5 discusses the data analyses. The external validity of BANS is addressed in section 4.6. Section 4.7 gives a brief summary of this chapter.

4.2 Introducing gaming/simulation

4.2.1 The many faces of gaming/simulation

Gaming/simulation is an interdisciplinary method which is used for research, and organizational change or to support policy development, training, and education (Peters et al. 1995). The method is directed at modelling a system by letting persons in different but coherent roles play the processes in that system in a more abstract

form (Geurts and Vennix, 1989: 65). It is thus part of the family of methods which conceptualize complexity by modelling it. It can also be used as a problem-structuring method. By modelling new or existing structures of policy-making and letting professionals work with those structures, flaws can be uncovered (cf. Office for Public Management, 1990; cf. Joldersma and Pegman, 1998).

The gaming/simulation tradition dates back centuries when war games were introduced to gain insight in strategic issues in warfare. Gaming/simulation gained popularity during and after the Second World War. The introduction of computers, and the development of operations-research, mathematical game theory, simulations, and the first business games stimulated its development. Gaming/simulation thus became increasingly popular in a number of disciplines where it served both theoretical as well as applied purposes (Duke, 1974: XI).

Its multi-disciplinary nature is reflected by the many different types of games and simulations which exist, from the popular management game - often used as a training device in management courses - to flight simulators, which mimic all possible weather and technical conditions in order to offer pilots the opportunity to learn to fly, to computer simulations which are used to research atmospheric changes. Considering this wide range in form and purpose, it is probably not surprising that scientists involved in the field of gaming/simulation disagree about the exact meaning of 'game' and 'simulation' (Lane, 1995: 605-607). Here, simulation refers to: 'a dynamic model of essential characteristics or elements of a real or hypothetical system, process or environment'. A model is built which imitates a system or process in order to offer insight in the way that system or process works. Game is defined as: 'exercises which work (partly) on the basis of decisions of players. The players play roles, try to reach goals, perform activities, experience limitations and arrive at results as a consequence of their activities in relation to other players or elements' (De Caluwé et al., 1996: 22). Some refer to the two concepts as synonymous. Here, both terms will be used in combination since we are interested in both characteristics. A game/simulation of a policy process involves both the design of a model of a process and of the complementary roles of those who construct that process. It is the people who play the roles that demonstrate how the model works.

4.2.2 Gaming/simulation as communication

A game/simulation can be seen as a workshop-like environment in which people meet and exchange information and experiences by playing roles defined by a scenario which centres on a policy issue and leaves the players plenty of latitude to create their own role, within the rules of the simulation (cf. Geurts and Vennix, 1989: 65-67). A game/simulation is thus characterized by interacting people who use different means to communicate with each other. For Duke (1974) the communica-

tion aspect is its most distinctive feature. He sees gaming/simulation as a mode of communication in which integration of language, the interaction patterns of participants, and communication technology together offer the opportunity for a 'multilogue', the most sophisticated pattern of human interaction and communication[1]. An important characteristic of gaming/simulation is thus that it offers players the opportunity to communicate on a sophisticated level and convey messages that are rich in meaning. Secondly, gaming/simulation is essentially about conveying a Gestalt, a holistic image of a certain problem (cf. Duke, 1974). A third characteristic of the device is that it is very specific; each game/simulation uses its own phrases and can hence be tailored to a particular problem. A simulated system or process will be the foundation for the roles and rules of play. Furthermore, it is also a medium which leaves maximum opportunity for spontaneous communication. This contributes to making gaming/simulation an authentic experience for players. A fifth characteristic is its chameleon-like ability to change if circumstances so require, for gaming/simulation involves actual communication between sender and receiver. It makes it possible to adjust quickly to changing perceptions. The leverage players have to adapt and change within a simulated environment offers them a sense of a relatively safe environment in which they can experiment. In sum, games/simulations provide a relatively safe environment that mirrors a reality in which various people can communicate and contribute to a holistic view of the future.

4.2.3 Functions of gaming/simulation

Gaming/simulation is used in training and education as a method which offers people a safe environment in which they can experiment with new roles and in which people learn by doing. Gaming/simulation can also be used as a method to analyse and solve policy and organizational issues. Together, participants can explore possible policy options. These types of games/simulations belong to the family of policy exercises and are related to methods like delphi, strategic conferencing, scenario workshops, and consensus conferences (cf. Geurts, 1993: 22; Mayer, 1997: 83, 117). There is a third function games/simulations can have: they can be used for research purposes.

Simulations are widely used for research in the natural sciences, but this is not the case for gaming/simulation in the social sciences (cf. Nees, 1983: 75; Lane, 1995). Most social scientists involved in gaming/simulation tend to concentrate on its design and application for education/training or organizational change and policy

1 'Gaming the future's language' was the title of the book published in 1974. The title refers to the author's view that gaming/simulation is an important instrument to acquire knowledge about the future in order to assist people in making choices for their future.

development. In addition, the fact that scientific thought on gaming/simulation is fragmented across a wide area of disciplines implies that the field has in some way the appearance of a diaspora. Consequently, a dialogue is difficult to sustain because scientists often only speak the dialect of their discipline, which hampers the building of a robust body of knowledge of methodological aspects of gaming/simulation. The fact that there are relatively few scientists in the social sciences who could contribute to that dialogue is an additional drawback.

Those who are interested in gaming/simulation from a research perspective engage in either research into game/simulations, for instance, Dukes and Waller (1976), who evaluated six games (cf. Stoll & Inbar, 1970, Martin, 1979, Wolfe & Roberts, 1993; De Caluwé, 1997), or they do research with the aid of gaming/simulation, like Gilles et al. (1991), who explored the validity of a test for schizophrenia (cf. Keys et al., 1988; Teach, 1993; Vissers, 1994, Dörner, 1996). In the first type of research, gaming/simulation is the object of research, whereas in the other two it provides a context for research.

Both types of research can contribute to different scientific goals (Vissers et al., 1995: 180):

a. the exploration of new ideas;
b. testing theories;
c. fundamental research;
d. applied research.

This fourfold distinction is a tentative one, and all kinds of combinations are possible. Gaming/simulation could serve these different purposes, but, as indicated above, it is not often used in the field of social sciences in general.

4.2.4 Gaming/simulation for policy sciences

In this study, gaming/simulation will be used for research in the field of policy sciences. Vissers et al. (1995: 181-182) distinguish the following contributions gaming/simulation offer researchers in this field. Firstly, games/simulations can offer an opportunity to experiment with policy processes. They are useful for studying certain aspects of change because games/simulations reduce detail and complexity and have a condensed time-span. Another advantage is that conditions can be varied between the different runs in order to compare, for example, different policy options, or to see whether different conditions in the context of the policy have implications for the outcome. Conditions that can be varied are the policy itself, the roles, the policy environment, for example, financial or legal conditions, or the participants. Gaming/simulation thus offers a possibility to conduct future studies. It allows for a way to look at future scenarios by playing them under different preconditions and analysing the outcomes. A third advantage is that gaming/simulation can

assist in cases where access to field research is very difficult, such as in areas which are very sensitive for security reasons, for example, elites in politics and industry, or in other situations where people are very protective about information and not willing to cooperate with researchers (cf. Eden and Ackermann, 1996). In games/simulations, people are said to feel more protected because a simulation only lasts a maximum of a few days and choices they have made in the game/ simulation do not have long term repercussions. It is therefore less threatening for participants to fill in questionnaires, be observed, filmed or taped than in real-life situations.

Because gaming/simulation provides an opportunity for multilogue and interaction, it is very suitable for studying participatory forms of policy-making (cf. Van der Meer, 1983b; Joldersma et al. 1995: 155). In this study, gaming/simulation will be used to serve research. A game/simulation will be used as a quasi-experimental environment for testing SODA. A method of problem structuring will be introduced in the game/simulation to facilitate a complex policy issue for the participants. So, it is not the game/simulation itself which is the object of this research, but the problem-structuring that is part of the policy-making process it simulates.

The reason gaming/simulation was chosen as a research method is because it has, as was indicated above, the advantage that the time-span of the policy-making process is condensed. Following network actors in their problem-structuring activities in real-life situations is very difficult: it would mean that we have to follow representatives of a number of different organizations. Also, it would be very time consuming because policies often take a very long time to develop (cf. Koppenjan, 1993; Dörner, 1996: 3). In most instances, real-life policy-making processes will be far less accessible than games/simulations are. In the latter, the interacting policy makers will be concentrated in time and space. Informal encounters can play an important part in policy-making and would be difficult to observe in real-life settings. Furthermore, a game/simulation has the advantage that it allows for conditions to be changed during the process. Thus, it can serve as an experimental setting that is, in essence, a laboratory environment.

4.3 Introducing BANS

The game/simulation which will be used in this research to measure how a technique based on SODA affects problem structuring is called BANS. BANS is the Dutch abbreviation of 'Beleidsadviseur Nieuwe Stijl' (policy adviser new style). It simulates policy-making in a large municipality (Beneveld) in the Netherlands. There are 14 players: representatives of the city council and of organizations which are part of the municipal network of policy makers. BANS was specially designed as a training method to assist civil servants in becoming more familiar with participatory styles of

policy-making.[2] Players are offered various tools to assist them in participatory policy-making. BANS lasts two days: on the first day the players work on a process architecture (i.e., a plan specifying the process of how to tackle a policy issue) for four policy issues, and on the second day they concentrate in more detail on the content of one issue, and design alternative strategies for how they intend to deal with this issue.

BANS was designed with the aid of a systems analysis of municipal policy-making in the Netherlands. The data for this systems analysis consisted of interviews with civil servants and a former city councillor who is now a consultant, who were all advocates of participative policy-making. In addition policy-making theories with participatory focus, such as the garbage-can model and Teisman's model of rounds (1995) were used. The three issues in the game/simulation concerning welfare, transport, and public order, were based on real cases. The fourth policy issue -an environmental issue - was modelled on a real-life environmental issue. A more elaborate description of BANS will be given in Chapter 6.

Below, we discuss whether BANS can indeed serve as a valid experimental environment which allows for conclusions about the real-life policy-making processes which it models (cf. Roelofs, 1998).

4.4 The research design

4.4.1 Introduction

BANS will serve as a type of laboratory experiment. Since we are interested in how a method will affect the quality of problem structuring, a stimulus based on SODA will be introduced in BANS at the beginning of the policy-making process of both days of the game/simulation. (A more specific description of how this will be done will be presented in the following chapter, which gives a more in-depth account of SODA). The game/simulation will be played six times. In three of the runs, the method will be introduced. In the other three runs, the participants will be left to their own devices. In both conditions, the game facilitator will play an important role in guiding the participants through the game/simulation. The results of the runs will be compared. They will be scored on the six quality criteria we presented in Chapter 3.

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2 It was developed by the Department of Policy and Organization Sciences of Tilburg University and IVA Tilburg (a research institute) in cooperation with a civil servants training institute. The researcher was part of the design team. BANS was not specifically designed for this research.

4.4.2 Research subjects & design

As discussed in the previous section, a choice was made to recruit groups of policy makers to participate in the research. Our assumption was that an experiment with real-life policy makers rather than students would increase the external validity of the experiment.[3] As Dörner (1996: 190-192)[4] pointed out, there is a clear difference in performance between professionals and students in the policy games/simulations he carried out: more experienced professionals perform better. Two mailings, a few hundred letters in total, were sent to civil servants in local government.[5] The game/simulation was offered to their municipality as a training in participatory policy-making. Four municipalities responded to the mailing and another two were recruited via personal contacts. The municipalities were asked to draw up a team of ten experienced civil servants, two representatives of a profit organization, and two from a non-profit organization. It was our intention to simulate a municipal network.

The order of recruitment determined whether a particular municipality would alternatively play a run without or with the stimulus. Hence, the way the experimental group was selected from the different municipalities was reasonably random. However, since we did not randomize the individual subjects across the two groups, they are referred to as non-equivalent groups (Cook and Campbell, 1979). Whether and how the groups indeed differed is discussed in Chapter 6.

Table 4.1 A post-test only design with non-equivalent groups

control group	**experimental group**
3 runs of BANS	3 runs of BANS with SODA

Another characteristic of the design is the fact that we were not able to perform a pretest and thus establish the level of problem structuring, prior to the introduction of the stimulus. Our design is a post-test only design. The nature of our research object does not allow for a pretest. We are interested in the way groups of policy makers structure a policy issue they are confronted with. Individual structuring

3 An additional reason for recruiting groups rather than individuals is the fact that it made it more easy to organize the runs. Considering the time investment BANS requires from potential participants who often have busy time schedules it would have been more difficult to recruit sufficient subjects.

4 Dörner explains the difference between students and experienced professionals with the concept 'operative intelligence'. Practitioners have experience in handling complex situations. They are more familiar with rules of decision making, know them better and know when best to apply them.

5 The first mailing went out to the members of a network of civil servants involved in strategic policy-making. A larger mailing was sent to all sorts of civil servants as part of additional offers and information on the courtesy of a large advice bureau. We received only one positive response.

skills, even if they could have been relatively easily assessed, are not necessarily good indicators for the problem-structuring skills of a group/network.

4.4.3 Facilitators

On the first day of the game/simulation, there are four issues and the 14 players concentrate on one of these four issues. In order to avoid a difference in experience with the SODA-based technique on the second day of the game/simulation, all four sounding boards - which were established around the policy issues - work with the method. Hence, four facilitators are required for this first part of the experiment. On the second day, the participants tackle one issue and only one facilitator is required. As facilitators we chose two advanced students, the researcher and the game facilitator who had many years of experience in facilitating groups. The latter was also facilitator of the entire game/simulation on both days. The facilitators worked on the same issue in every run of BANS. For instance, one facilitator worked every run of the experimental group with the policy makers who were involved in the environmental issue. Thus, we tried to ensure that there was a certain level of homogeneity with regard to the facilitators' influence in the process. Due to circumstances, the period in which the data were collected was prolonged. Consequently, the facilitator for the welfare issue had to be replaced in the third run in which the SODA-based technique was introduced.

The researcher trained the facilitators to work with the problem-structuring method in four sessions of approximately 2-3 hours[6]. Furthermore, a pilot was organized with third-year students playing BANS so that the facilitators could practice facilitating the groups using the method. They were observed, and their maps were discussed afterwards (see Appendix 12).

4.4.4 Collecting data

Two types of data were collected during the runs of BANS: observation and survey data. The six quality criteria served as the basis for the design of the observation book (see Appendix 11) and the questionnaires (Appendices 2-9).

On the first day, four observers - three students and the researcher - followed the participants through the game/simulation. Each observer concentrated as much as possible on one issue. Conversations were written down and questions in the observation book, relating to the six criteria, were answered by them. Due to the fact that

6 Phd-students volunteered in discussing the subject of their thesis and the difficulties they experienced in their research. The facilitators built a cognitive map with them. Furthermore, the former also carried out brief role plays with the role scripts of BANS which offered the facilitators experience with a setting similar to the one they would have in the experiment.

the recruitment of municipalities and the planning of the runs took longer than expected, two observers had to be replaced after the fourth run.

The observers - two were also facilitators - were trained by the researcher in two one-hour sessions with the aid of a video tape of meetings designed for a training in negotiation skills. In order not to inhibit the participants, it was decided not to tape or film them, for this would have made the game/simulation less realistic. Furthermore, experience with previous runs and other games/ simulations made it clear that people would move around and have tête à têtes at various instances and in various locations which made it difficult to film all formal and informal meetings.

Altogether, approximately 280 pages of observation protocol were collected during each run. In addition to observations, surveys were carried out to collect additional data. The participants received seven questionnaires on the first day and five on the second day. They were asked to answer them either from the perspective of the policy maker they were in real life, or alternatively, from the perspective of the role they were playing. The results of these questionnaires were used in the debriefing of the game/simulation. For a more elaborate account of the data collection and analysis see Appendix 12.

The questionnaires provided during the game consisted partly of closed ended questions and partly of open ended questions. The former related to the level of interest, influence, and cooperative behaviour of the various stakeholders involved in a particular issue. The latter type were related to the nature of the issue and to ideas for tackling these issues. Furthermore, questionnaires 5-9 consisted of Likert-type items with 5-point scales related to the six quality criteria of problem structuring. These six variables were measured by one item only. Although this does not benefit the validity and reliability of the instrument, given the busy agenda of the players, it was not possible to provide them with more elaborate questionnaires (cf. Ng-A-Tham, 1999: 103).

4.5 Analysing the data

The emphasis in the analysis is on qualitative data. This study is of an exploratory nature. Little (empirical) research has been conducted on problem structuring in policy processes and the effects of methods of problem structuring. Using sophisticated and advanced quantitative techniques would not be very appropriate.

The results of the more quantitative data we collected, are analysed by means of (repeated measures) (M)ANOVAS and T-tests.

The more qualitative data consisted of 280 pages of observation protocols for each run. These were condensed into reports of, on average, 45 pages. In order to assess the six quality criteria of problem structuring on the basis of the observation

transcripts, both the original protocols as well as the reports were used. How the six quality criteria are operationalized and measured is described in Chapters 7 and 8 which present the results for one of the issues and for the second day of BANS. Furthermore, Appendix 12 presents an overview of the indicators which were used to measure the quality criteria.

4.6 The issue of validity

4.6.1 Internal and external validity

The advantages games/simulations are said to have for research purposes have only been validated to a limited extent (cf. Lane, 1995). Since scientific interests in gaming/simulation is limited, methodological questions regarding the use of gaming/simulation are still in their infancy. A more thorough analysis of the methodology of gaming/simulation would contribute not only to its scientific use but also to its practical applications. Furthermore, validity assessment might provoke a better understanding of gaming/simulation by the wider scientific community.

Two types of validity are commonly distinguished: internal validity and external validity. In experimental methodology[7] - we are here predominantly interested in the use of gaming/simulation as a type of laboratory experiment -, internal validity refers to the extent to which the observed effect is caused by the experimental treatment condition only and not by other extraneous variables such as, for instance, the experience of the subjects (cf. Christensen, 1994: 213). External validity is the extent to which the results of an experiment can be applied to and across different persons, settings, and times (Christensen, 1994: 455). So, internal validity concerns the variables within the experimental condition, and external validity concerns the degree to which the results are generalizable to the situation the experiment simulates.

The internal validity of a game/simulation can be assessed by distinguishing the treatment from the characteristics of the game/simulation, or from the characteristics of the subjects which may influence the behaviours or processes which are the object of the research. An experiment with a game/simulation may be defined as internally valid, when there is certainty that a change in the dependent variable is the result of the independent variable (stimulus) and not of characteristics of the game/simulation or the subjects. The characteristics of BANS will be addressed below. In Chapter 6, characteristics of the research subjects are discussed.

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7 Vissers et al. (1998) make a provoking and interesting plea to abort the traditional methodological perspective of validity. They question the validity of validity and the way social scientific thought on validity has evolved.

4.6.2 Four types of external validity

External validity concerns the level at which a game/simulation represents its reference system. External validity has been operationalized by students of gaming/simulation in various ways. For instance, Wolfe and Roberts (1986) view external validity as a correlation between performance in a business game and performance in business in real life. For them external validity concerns the question whether a game is a good predictor of real-life situations. Terhune and Firestone (1970) studied international relations and interpreted (external) validity as the level at which the patterns their game/simulation produced corresponded with those of real international affairs. Their aim was to generate new hypotheses. Alternatively, when a game/simulation is directed at training and education, external validity may be defined as introducing new knowledge to the game's/ simulation's reference system. External validity means different things to different people (cf. Norris, 1986). This line of thought is ascribed by Raser (1969). He distinguishes four types of validity that are relevant for gaming/simulation. These are:

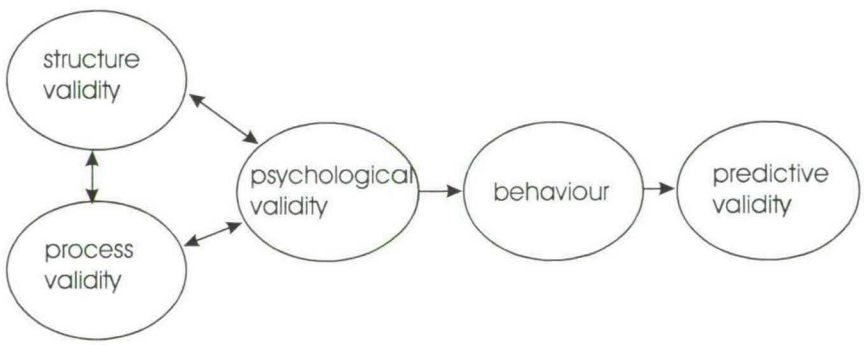
- structure validity: the extent to which the structure in the game/simulation represents that of its reference system accurately;
- psychological validity: the extent to which the environment appears to be realistic to the players;
- process validity: the extent to which the processes which develop in the game are isomorphic to the processes which can be observed in the reference system;
- predictive validity: the extent to which the game can produce data which predict future events or retell past events;

All four types can be perceived as aspects of what Christensen has defined as external validity: they all draw a line between the experimental condition, in other words, the game/simulation, and that which it simulates. How do these four types of validity relate to one another? Structure and process validity concern the generalization of two sets of aspects of gaming/simulation. They are two dimensions of the information which the game/simulation and its reference system have in common. Structure and process validity are both relevant for achieving some kind of predictive validity. It should be noted that predictive validity is difficult to obtain with gaming/simulation (cf. Raser, 1969). This will probably be more true for the policy-making processes we are interested in because of their socio-political complexity. The game/simulation involves various organizations which play a role in these processes and as a result one has to deal with the behaviours of multiple actors who interact and react, and are influenced by their often complex environment. These processes are more difficult to model. They incorporate greater uncertainties than the more controlled experiments which are more common in psychological research. For instance, Tomikura (1998) describes a game/simulation of the hostage crisis at the

Japanese Embassy in Peru. The outcome of the game/simulation differed from the outcome of the real-life event. Tomikura explains this on the basis of the fact that two of the stakeholders were not simulated. It is, however, also important to note that games/simulations offer players reasonable freedom in communication. Thus, players in part shape the system games/simulations model. Consequently, behavioural patterns differ because different people will make different choices given their personality, ability, norms and values, and expectations. Forecasting the outcome of social and political behaviours and processes with great accuracy is difficult. This is, however, not only true for gaming/simulation but also for other research methods, like, for instance, the case study.

Psychological validity is perhaps even more crucial for achieving predictive validity than process and structure validity are. After all, when a game/simulation is perceived as unreal by the players, they are not likely to accept the context it offers and this is bound to affect their behaviour. As a consequence, structure and process validity will be undermined. Part of what constitutes the process and structure of a game/simulation is the result of the players who interact. Figure 4.2 describes how structure, process, and psychological and predictive validity can be related.

Figure 4.1 Four types of external validity



High structure, process, and psychological validity do not guarantee high predictive validity. As suggested above, it is difficult to capture the richness of social behaviour at the meso and macro level in theories and to make detailed forecasts.

4.6.3 External validity and open structure

Games/simulations differ in the degree of leverage they offer players in making rules, taking decisions or dealing with the task or problem they are presented with. Both Vissers (1994) and Van der Meer (1983a, 1983b) have argued that games/

simulations with an open structure provide an appropriate context for social science research. They leave substantial freedom to the players to shape the social structure. This, Van der Meer argues (1983b), enhances the sense of reality of the players. They have ample possibility to partly construct that reality, and hence can better identify with it. Following this argument, a relatively open structure implies that the game/simulation scores higher on psychological validity. However, the open character of the game/simulation does not imply that structure did not matter in Van der Meer's setting. He emphasizes the relevance of a setting in which the structure mirrors that of the reference system. Thus, in his view, structure validity is also important and in a way essential to achieving psychological validity. Furthermore, there are feedback loops from psychological validity to structure validity, because players, in part, determine the structure. In their perspective, process (and hence process validity) is also a product of the open structure that is modelled by the designers, and the interacting players which give meaning and constitute structure in addition to the structure the game/simulation offers. Following this argument, external validity is threatened when one tries to capture the reference system in a detailed pre-set structured model. Too much structure will make players hesitant to interact and will affect process and psychological validity.

BANS, the game discussed in section 4.3, does provide its players with more structure than the game/simulation Vissers en Van der Meer used in their research. BANS was developed as a training device. Players are restricted by the game cycles, which specifies for a substantial amount of the available time who will be meeting whom and what the aim of the meetings are. Formal meetings in which it is determined who will meet whom are alternated by informal meetings in which the players can decide for themselves if and whom they want to contact. Players can change the rules if they wish to do so, but in practice, they tend to follow them. Furthermore, the players are asked to fill in a number of forms on the day which are designed to help them analyse the policy issues and the stakeholders involved. In addition to a stakeholder analysis, additional policy instruments are introduced in the game/simulation and people are challenged to work with them. The designers designed this rather elaborate structure, in order to provide an optimal learning environment to the players, since BANS was initially designed as a training tool.

Following Van der Meer's (1983b) argument, BANS does not seem to be a very open game/simulation and consequently would lack verisimilitude, which would not be a problem if the game/simulation was used for training only. However, BANS is played with a research purpose. It is not only a training in participatory policy-making for the players, but also provides an experimental context for this research.

According to Peters et al. (1995), the purpose of the game/simulation is a factor which needs to be considered when discussing its external validity. They argue that the purpose of the game/simulation determines whether the four types of validity Raser defined are all relevant. They scored them for the three functions gaming/simulation can have and which were introduced in section 4.2.3.

Table 4.2 Types of validity and their relevance for gaming/simulation, depending on aim

	education and training	**policy and organization**	**research**
structure	+ -	/	+
process	+ -	/	+
psychological	+ -	+	+
predictive	-	+	+

Source: Peters et al., 1995.

Since BANS serves research purposes, Peters et al. (1995) claim it ought to accommodate all four types of validity. Given the fact that we have introduced substantial structure and rules to facilitate learning - BANS was designed as a training -, it is questionable whether all four types of validity are applicable here. Certainly, its predictive validity seems questionable.

4.6.5 The validity of BANS

BANS' structure, roles, and steps-of-play were based on a system analysis. Interviews with practitioners and policy theories provided the data for the design. Both the construction of the analysis, the roles, the steps-of-play, and the policy issues were extensively discussed by the three designers of BANS. The structure follows policy-making on the level of local government. Civil servants, the aldermen, mayor, and representatives of two interest organizations, and a neighbouring village are simulated. The political constellation was also modelled on the basis of its reference system. The contextual variables for the municipality are based on that of the city of Tilburg. Furthermore, issues were adapted from real-life policy issues: interviews with key-figures in two issues and reports provided the data for their design.

However, some additional elements were introduced in BANS so that the players could learn a new (participatory) style of policy-making which was in compliance with the simulation requirements of the client. For instance, on the first day of the game/simulation, the participants were divided over four so-called sounding

boards. A sounding board can be regarded as a policy instrument which offers local government the opportunity to involve external interest organizations in an early stage of the policy-making process. Thus, it is not an existing institution in local politics in the Netherlands. Consequently, both structure and process are not identical to that of its reference systems. Although not identical, considering the design process and the various elements of BANS viz., systems analysis, roles, issues, institutions, political constellation which were modelled after the reference system, structure and process seem sufficiently similar to regard BANS as reasonably valid.

The experiment was conducted with groups of civil servants and representatives of interest organizations in existing municipal networks. We thus aimed to simulate an existing policy network and tried to enhance its psychological and process validity. As will be indicated below, the network was not a genuine network constructed around a particular issue. The groups of players were seen more as abstractions from municipal networks. Nevertheless, participants did bring their frame of local policy-making into the game.[8] They were not randomly assigned but were all employed by one municipality. Consequently, participants brought their ideas, experiences, and images of the municipality and its public to the game. The choice for existing municipal groups should enhance the psychological and process validity of BANS.

A means of testing whether BANS is psychologically valid is asking the participants how they experienced the game/simulation. It is often the case that people experience game/simulations as realistic (cf. Van de Meer and Geurts, 1995: 172). This suggests that psychological validity can be realized.

A first preliminary assessment was provided by the experiences of civil servants from the Ministry of Agriculture, Fishery, and Nature Conservation who played a similar game/simulation which was adapted from BANS. The results from these runs and the first runs of BANS for the experiment showed that participants experienced the game/simulation as fairly realistic: they considered the issues, contention of interests and diversity of interests realistic, but the time constraint unrealistic. The participants also argued that their role play was inspired by their own real-life experiences. The answers of the participants suggested that the psychological validity of BANS was sufficiently valid to continue the experiment.

In retrospect, a second assessment can be made on the basis of the data of all six runs. The perceptions of the research subjects which participated in the quasi-experiment are presented here. Altogether, there were 82 people divided over 6 runs

8 A pilot played with students demonstrated that there is a difference in outlook. Students tended to have a more simplistic view of the world and opted for choices professionals would have perceived as rather unrealistic and out of context.

of the game/simulation who participated in this research. They answered several questionnaires during and after the game/simulation. The following table presents the factors the participants considered realistic and unrealistic regarding BANS. Table 4.3 presents the most frequently given answers.[9] (to open ended questions).

Table 4.3 Participants' assessment of realistic and unrealistic characteristics of BANS (n= 62)

realistic	- the issues (25) - the conflict of interests (15) - the contribution of the representatives of profit and non-profit organizations (4)
unrealistic	- the available time between the meetings (9) - the play of some participants (8) - the absence of budgets (3)

There is more consensus about what is realistic than about what is unrealistic. Again, the issues and the way the conflicting interests were portrayed were perceived as the most realistic characteristics of the game/simulation. Time-constraint is a typical characteristic of gaming/simulation, and thus, it comes as no surprise that people perceive this as unrealistic. Four of the participants who considered the way some fellow participants played their role as unrealistic came from the same municipality. This particular run was characterized by strong polarization of positions on the part of some of the representatives of the interest organizations. This was perceived by some as unrealistic. In a number of instances, participants had contradictory ideas about whether an event or behaviour was realistic or unrealistic.

These outcomes suggest that BANS does differ from real-life experiences. However, it also captures a number of characteristics of real life policy-making processes which are realistic in the eyes of the players. The interactions between the various policy actors evoked by their position on the issues they are involved in, resemble those of the world the game/simulation tries to simulate. BANS provides a context for policy-making which is familiar in terms of the issues and interacting interests. The psychological and process validity BANS provides seems quite acceptable, as does its structure validity, albeit to a lesser extent. Its predictive validity appears to be limited.

9 The response for this questionnaire was 76%. However, not all respondents answered all questions.

4.7 Conclusion

In this chapter, gaming/simulation was introduced as a basis for our research design. The game/simulation BANS serves as an experimental environment in which a technique based on the problem-structuring method SODA is tested. BANS simulates local policy-making on policy issues which involve various stakeholders. The extent to which BANS provides a valid environment which sufficiently resembles the real-life policy-making processes it simulates was discussed. Its external validity is not beyond question. The groups participating in the experiment were not genuine policy networks. Nevertheless, the design of BANS and the issues which feature in it were based largely on real-life issues. The participants themselves experienced the issues and the conflicting interests as realistic. The psychological and process validity seem sufficiently valid and structure validity is acceptable. There are no indications suggesting BANS has high predictive validity.

BANS will be played with representatives of six municipalities, three of which will be supported by a SODA based intervention. The design of the experiment is a post-test only design with nonequivalent groups. During the experiment data will be collected by means of observations and questionnaires. Content analysis, repeated measures (M)ANOVA's, and T-tests will be used to analyse the data collected. Chapters 7 and 8 and appendix 12 provide a detailed account of the way the data were analysed in terms of the six quality criteria for problem structuring we distinguished.

5. The TAO of Strategic Option Development and Analysis

5.1 Introduction

Strategic Option Development and Analysis (SODA) is one of a number of methods which support problem structuring and/or other aspects of the policy-making process by means of a mapping technique. In Chapter 3, some of these methods were introduced briefly, and a choice was made for SODA. SODA emphasizes the structuring of policy issues in their own right more than the other methods, which tend to focus more on policy development. Furthermore, it not only aims to bring about transparency at the cognitive level but also contributes to the social-political realm of policy issues. The method thus pays close attention to the different dimensions of complexity which characterize a policy issue. Cognitive or group mapping are mapping techniques used in SODA and its most outstanding feature. Not the map itself - which addresses predominantly the cognitive complexity of a policy issue - is what the method is about. The road which gives rise to a map is more relevant. In other words, the drafting of the map is perhaps more of a change agent than the map itself.[1] Perhaps that is one of the reasons why Eden and Ackermann have introduced the term 'JOURNEY making' for the use of SODA for developing strategies.[2]

Before explaining in more detail what SODA is and how it will be introduced as a stimulus in BANS, its theoretical notions will be discussed. (This chapter is largely based on Eden et. al. (1983) and Eden, 1992b; 1994 which explain SODA in more detail, and on Eden and Ackermann, 1998a; a recent update of the approach.)

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1 Hence, it is the way (tao) and not that which lies at its end which is most valuable: the title of this chapter was inspired by this notion.

2 In their book 'Making Strategy' (1998a) Eden and Ackermann introduced the name JOURNEY making for their approach: JOintly Understanding, Reflecting and Negotiating strategy.

5.2 The theoretical background of SODA

SODA has been developed to assist decision-making on strategic issues in organizations. Eden places his approach somewhere between traditional operational research, a management science approach, and organizational development. These are disciplinary traditions which are (also) interested in decision-making in groups. Whereas the operational researchers and management scientists have been predominantly concerned with improving their model-building abilities, the organizational development (OD) proponents have concentrated on how they could obtain data from a group of people facing an issue that they wanted to solve (Eden, 1983: 61). This involves data which are by definition messy and difficult to obtain or assess straightforwardly. Issues are often difficult to solve without the information and involvement from those who define the issue in the first place. However, Eden (1994) criticizes the OD tradition for not presenting the data very well to the group they were elicited from. The information an OD intervention extracted from a group was not presented to them in a clear way so that it gives them a good insight into their organization's problem or policy issue.

SODA's organizational perspective is influenced by the work of March and Olson who introduced the garbage-can model to describe how individuals in organizations try to put forward a problem which matches their own interest (Eden, 1989: 25-26). Negotiation plays a central role in determining which problems are put on the organization's agenda. Organizations are thus the product of continuous negotiation about rules and roles.

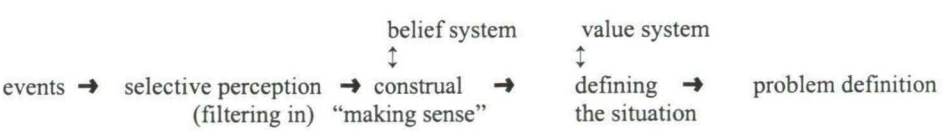
Additional disciplines and scientific theory, which have strongly influenced the development of SODA, are clinical, social, and organizational psychology and ethnomethodology. As pointed out in Chapter 3, at the heart of the approach lies the personal construct theory of Kelly from which Eden and collaborates derived their cognitive-mapping technique (Eden, 1990b). Kelly's theory can be placed in the epistomological tradition of social constructivism. Individuals construct their own reality by giving meaning to events and defining whether it is an issue which demands action or not.

Kelly's (1955) theory centres around meaningful activities people engage in, and he applied it for psycho-therapy. The basic principle of his theory is that the individual tries to make sense of events by comparing them with similar and/or very different experiences. People construct their own view of a situation, by comparing it to similar experiences or to experiences that are very unlike the one they are trying to make sense of. These sense-making activities are directed at controlling or predicting an event or the behaviour of human beings (Eden, 1994). Constructs are thus characterized by their bipolar nature. These two poles are not logical opposites

but opposites defined by the individual who construes a substance. For instance, an example Kelly uses is that an individual can refer to someone as 'gentle' versus 'aggressive' or, differently, 'gentle' versus 'tactless' or alternatively 'assertive'.

Events are defined differently by different people. Depending on their personal frame of reference, individuals may define an event in terms of an issue. So the point of departure for the SODA methodology is the individual with his or her own idiosyncratic ideas of an issue. Kelly devised a way to visualize the constructs people make of events. Language plays an important role in SODA. Verbal and non-verbal language are analysed and captured, by means of various techniques and tools, in meaningful concepts. To be able to assess the language with which people describe events and detect what, for them, are reasons to desire change, it is necessary to make a distinction between values and beliefs (Eden, 1994). This distinction contributes to understanding 'the subjective world of policy-making in organizations' (Eden, et al.1979: 15). Beliefs 'describe attitudes, assertions and theories about the world of a person'. A value a person holds can be defined as 'an enduring belief that a specific mode of conduct or end state of existence is personally and socially preferable to alternative modes of conduct or end states of existence' (Rokeach, 1973 in: Eden et al. 1979: 39). It is this system of values an individual holds that serves as a frame of reference and provides the impetus for action. The belief and value systems interact with each other. They are causally connected. The distinction between values and beliefs contributes to our understanding of cognition and action in terms of preference and intervention (Eden, 1994: 263). How the belief and value systems influence cognition is described by Eden in the figure below.

Figure 5.1 Belief and Value systems and cognition



Source: Eden, 1994: 263

Perceptions, which are by nature selective, are followed by the process of sense-making (construing) of an event. This process is influenced by the belief system of an individual. The individual compares the event with similar or contrasting experiences. It is in interaction between the beliefs a person holds regarding a particular event and his values concerning this matter that the situation is defined.

Subsequently, the definition of the situation will often be an incentive to act and an impetus for change along the lines the value system indicates.

Now that we have touched upon some of the theoretical notions which have inspired the development of the SODA method, the method itself will be described.

5.3 Strategic Option Development and Analysis

5.3.1 SODA: A set of tools and techniques

SODA consists of a set of tools and techniques which are used to assist groups in 'problem finishing' (Eden, 1987). Depending on the characteristics of an assignment, the facilitator will select a number of tools and techniques to assist the problem-structuring process. The method is directed at creating order, a sense of direction, and commitment among the participants. In the problem-structuring process, SODA aims to strike a balance between efforts directed at creating a 'socially negotiated order' and a 'negotiated social order' (Eden, 1989, 1992a, 1992b; Eden & Ackermann, 1998a: 48-51). The first aspect of negotiated order is the outcome of a negotiation process in which the social history and future relationships between the key actors are taken into account. Negotiating change is a social process. In addition, negotiated social order concerns the negotiation of new social relationships. Discussing organizational change is bound to affect existing relationships, communication patterns, and the way people relate to each other in an organization. Relationships need to change in line with the new organizational goals and hence are the subject of negotiation. These two aspects of negotiated order of organizations need to be balanced. The balance can be brought about with the aid of a number of tools and techniques such as cognitive mapping, oval mapping, stakeholder analysis, role plays, snow cards, attribute maps and grids, and the software programme Decision Explorer (formerly Cope) which can be used for building cognitive/group maps. The cognitive mapping technique is the most important technique within the SODA approach.

5.3.2 The art of SODA

A SODA trajectory always starts with a facilitator who is asked by a client, often a senior manager, to look into a specific policy issue. In close deliberation with the client, the contours of the issue are decided on and a group of people who are key figures (3-12 people) with regards to the issue is formed.

Provided the circumstances allow it, the facilitator will first interview the group members individually to draw their cognitive maps of the policy issue. While interviewing the facilitator will draw a map: he models the policy issue as it is perceived by the interviewee. It is a hierarchical model which is drawn, connecting

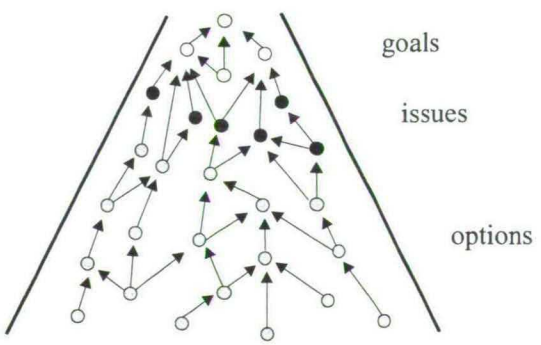
chains of goals and options through arrows which often indicate 'causality, influence or implication' (Eden and Ackermann, 2000; see Figure 3.4). From among the phrases with which the interviewee describes his view of the issue, the facilitator selects central concepts which seem crucial for the interviewee's understanding of the issue. The map is drawn in the language of the interviewee. By asking question like: 'What are the alternatives for a given situation?'or 'How does it affect you?' people are encouraged to tell freely about their idiosyncratic ideas. Since the concepts are written down in the imperative form, they indicate an action orientation. Concepts which are insufficiently clear are presented in a bipolar form. Psychological opposites are then written down (see section 5.2). The interviewee is asked what contrasts with the concept he or she mentioned. An example of a concept written as a bipole is: '*improve quality of life'* rather than *(*in mapping script 'rather than this' is indicated by three dots: **...** *) 'increase economic performance'*. As indicated above, concepts are linked through graphs which often show means-end relationships. Yet, they are 'not taken to be causal in a precise way' (Eden, 1988: 5). They draw a line from a construct which has consequences for the construct the arrow points to. The latter receives explanatory meaning through the graph.

The map that is being drawn is visible to the interviewee. Subsequently, the facilitator discusses the concepts on the map and the way they are linked. This gives people an idea of what mapping involves and how the map illustrates their perception and what, to them, is important about the issue. 'Cognitive maps can be seen as a picture or visual aid in comprehending the mappers' understanding of particular, and selective elements of the thoughts of an individual, group or organization'(Eden, 1992a: 262).

When the individual maps have been drawn, the facilitator will tidy the various (individual) maps and, depending on the case, discuss and elaborate them in a second interview. While discussing the map with its 'owner', the facilitator can opt to do this either in a top-down manner or vice versa. In the top-down approach, participants are invited to expand the chain of goals by moving to successively higher levels in the hierarchy. The facilitator continues asking questions until the goal at the top is good in its own right (Eden and Ackermann, 1998a: 314). In the bottom-up approach, the facilitator gradually works with the interviewee from the mean at the bottom of the map to the highest goal. First, the attention is focussed on the tails and the interventions the interviewee considers. A better understanding of the map is obtained and new information which surfaces will be integrated in the map. The facilitator will spend time discussing feedback loops. People are often unaware of the loops in their view of particular issues. Discussing these loops can be an important step in the learning process of participants.

When a second interview round is finished or absent, the maps are analysed and merged by the facilitator and presented to the group. Figure 5.2 shows the hierarchical structure of a cognitive map, which refers ideas and values of an individual. The structure is similar to that of a group map. It shows the core elements of a map. It contains goals which are the highest objectives an organization or group of policy makers have; these are referred to as heads. Key (or strategic) issues or themes are the core element of a cluster of concepts. They are connected directly or indirectly to goals and are irreversible on the longer term and involve substantial means in terms of people, energy, time, and money (Eden and Ackermann, 1998a: 404-405). Furthermore, clusters are groups of concepts which are linked and share a common or similar context. The distinction between heads, issues, and clusters is useful for discussing the map with individuals (and groups). Analysing these characteristics of a cognitive map is the starting point for merging individual maps into a group or cause map. If there was more than one interviewer, all interviewers should partake in building the group map. Only thus can the value and belief systems which cognitive maps try to capture be fully appreciated (cf. Eden and Ackermann, 1998b). All concepts from the different cognitive maps which deal with a particular subject area are entered in the group map. By giving the different concepts particular numbers sets of the various individuals can be retained. Concepts which are identical are merged. All links of the concepts are retained as well as the language of the interviewed participants (if possible). Links need to be checked however, whether they have not changed because of a possible positive or negative quality of the link in one cognitive map as opposed to another map. All heads, even if they are contradictory are included in the group map. They will be later discussed with in a group session.

Figure 5.2 Hierarchical structure of a cognitive map



Source: Eden and Ackermann, 1998a: 410

When the group map is ready, its structure and content are analysed. Feedback loops are traced and an agenda is drawn up for a (first) group meeting. The aim of the meeting is often discussed with the client or senior group member. In this meeting, the map is briefly introduced. Subsequently, the facilitator will encourage a more in-depth group discussion about the map. As described above, the discussion can follow a bottom-up or top-down approach. The participants are given time to absorb the changed meaning which results from the integration of the various individual maps. They need to familiarize themselves with new chains of concepts which may put their own concepts in a different perspective. In the discussion, the map will probably be elaborated. A more detailed discussion will start on the issues or themes in the group map. Through negotiation or voting, choices can be made regarding particular goals and/or actions. Generating and structuring concepts and discussing the structure form a cyclical process during both individual interview and group sessions.

The mapping trajectory sketched here can be adapted according to the demands of a particular issue and/or organizational characteristics. In those cases where it is not possible to opt for individual interviews as a point of departure, mapping can start with a group. The facilitator can opt for a manual approach called the oval-mapping technique. In this case, participants of a group session are asked to write down their ideas of the issue on oval-shaped cards and stick these on the wall. A question capturing the issue is written on the wall by the facilitator. It should trigger ideas of how the participants view and relate to the issue. The oval-mapping technique emphasizes the direct participation of the group members in the building of a joint map. The facilitator has the important role of encouraging people to come forward with their ideas but also to structure and tidy the map and link the ideas. Often there will be a break in the session in which the facilitator tidies the map and analyses its content.

There are additional tools which can be introduced in the SODA approach, such as a stakeholder analysis and a software program. The Stakeholder Analysis aims to provide insight into who the relevant players are with regard to the organization's future or, in our case, the future of a policy issue. The software program Decision Explorer (previously Cope) can be used for both construing group maps with participants or analysing and merging cognitive maps. Maps can be drawn on the computer screen and projected on the wall so that a group of people can see directly what is changing (for additional instruments, see Eden et al., 1979, 1983, 1998a). There are two modes of applying computers in interventions. In the one case it is an assistant facilitator who works with the computer. The group map is projected on a wide screen and the participants engage in a discussion on the map led by the facilitator (single-user group support, cf. Ackermann and Eden, 1998).

Alternatively, all participants work with their own laptop and contribute concepts directly to the projected map (multi-user group support). Technological development has greatly benefited the practical usage of hard and soft-ware in the past decade.

The workshops which are organized as part of a SODA trajectory often combine the above tools and techniques in various ways (cf. Ackermann and Eden, 1994; Ackermann, Belton and Shepherd, 1997; Ackermann and Eden, 1998). Manual techniques, e.g., oval mapping or individual interviews are followed by computer supported interventions with decision explorer. Although computer supported interventions have become a common feature of a SODA-trajectory, Ackermann and Eden (1994: Eden, 1995) emphasize that SODA is basically a facilitator driven group decision support system which makes use of computers. In contrast to computer driven systems such as group systems, computers in SODA are used to support the process and should determine less the design of the meeting. Eden (1995) argues that facilitator driven systems have ambitious objectives: they aspire to realize commitment to future actions. Furthermore, they take account of group dynamics.

Although combinations of techniques are a common feature of SODA, a facilitator can also opt for a strictly manual approach (cf: Eden and Ackermann, 1998a: 266).

The choice between the various techniques depends on the specific situation. The facilitator will tailor tools, techniques, agendas and physical arrangements of the location (Bryson, Ackermann, Eden and Finn, 1995). Factors which influence these choices are the available time and financial resources, the experience intended participants have with computers or with consultation, and the client's wishes. The goal of the intervention may also have implications for the design of the workshop. A focus on structuring a policy issue requires a different design and facilitation than a focus on making decisions. For instance, Ackermann and Eden (1998) found that facilitating decision processes is more time consuming. More attention has to be paid to the practicality of ideas. Also, ensuring the involvement of specific participants is more crucial in order to obtain support for the intervention outcome. With making decisions, as opposed to problem structuring emotional outburst are considered less desirable and hence greater effort is made to avoid confrontations. Depending on particular characteristics of the case, a particular design for a SODA trajectories is chosen. However, they will all involve cognitive mapping, i.e., making maps of the ideas of an individual, and/or group mapping and a meeting which brings together a team of policy makers.

5.4 Oval mapping in BANS

5.4.1 Oval mapping

The game/simulation BANS will provide the context within which a mapping technique based on SODA will be tested. Given the time constraints the game/simulation poses to us, the oval-mapping technique is chosen as the focus of our research. The advantage of oval mapping is that it can be productive in a relatively short time span. The condensed form in which policy-making and hence problem structuring is shaped by BANS makes it difficult to draw cognitive maps at an individual level. With oval mapping a group of policy makers immediately starts working on a group map. An additional argument for choosing the oval-mapping technique is that since problem structuring is more present in the first part of the policy-making process (cf. Chapter 2) a problem-structuring intervention should focus on that part. Hence, the choice for oval mapping which is a concentrated approach to issues. The following section discusses how characteristics of the oval-mapping technique will be introduced in BANS.

5.4.2 Oval mapping as a stimulus which fits the BANS structure

In round 1 of BANS, four policy advisers are responsible to elicit from fellow sounding-board members the various perceptions of how they would like to be involved and involve others in planning the process of policy-making for the four issues. After a first round of introduction in which participants receive their role scripts and familiarize themselves with their 'job' and the issues, the participants meet in four sounding boards in the second round. In these meetings, which last one hour, characteristics of the oval-mapping technique are introduced in the experimental group by facilitators. An average oval mapping session as applied by its designers may last between 1-3 hours (Eden and Ackermann, 1998a: 303). However, the design of the game/simulation does not allow for a longer intervention period than 1 hour because the runs with the control group require a matching time schedule. A meeting of more than one hour for the control group would hamper the dynamics of the policy-making process of the municipalities in this group.

The following presents the guidelines the facilitators were given: they are based on Eden and Ackermann's (1998a: 301-320) basic instruction for oval mapping. They do not include the additional steps which can be useful as well.

1. The facilitator starts the intervention with a brief introduction in which he/she explains what he/she will try to achieve, what is expected of the participants and what they, on their part, may expect of the sessions. He/she:

- points out that the aim of the session is not to reach consensus, but to get a clear picture of the different views of the participants of the policy issue;
- hands out the ovals, markers, and blu-tack;
- makes sure the flip-over sheets are already on the wall;
- invites the participants to come and sit in a semi-circle facing the flip-over sheets on the wall.

2. After formulating what, according to the facilitator, seems to be the key definition of the \policy issue, the various group members are invited to respond. The question should stimulate the minds of the participants. He/she
   - writes on the flip-over sheet, a question (clearly) which captures the policy issue in order to maximize response. This question should be fairly broad but not ambiguous.

One of the questions we used for one of the four issues (the light pollution issue) was as follows: *Which aims do you want to achieve? Which actions need to be taken in order to achieve them and with whom?*

3. The facilitator can assist the participants in writing down ideas on the ovals: He/she
   - assists the participants in writing down the concepts;
   - encourages the participants to write their concepts in the form of infinitive verb forms to give the ideas on the ovals an action orientation *(for example: 'improve the quality of problem structuring' rather than 'the city council should improve the quality of problem structuring')*
   - asks participants to write down the contrasting poles of a concept if ideas are unclear *(for example: 'improve the quality of health care' rather than 'agree on the need for a more efficient health care')*
   - rewrites concepts which are unclear, or asks the participant to do so.
   - points out that there should not be more than approximately 8 words per oval
4. Participants are invited to stick their ovals on the wall. The concepts on the wall will trigger new ideas or responses. The facilitator manages the group process and discussion. He/she:
   - makes clear to the participants that only ovals which are on the wall will be taken into account when developing policy strategies;
   - makes clear to the participants that they should not pile up ovals: when an oval is written, it should be stuck on the wall;
   - encourages people to follow up on ideas of others;

- encourages the debate between participants but makes sure that all ideas are written down on the ovals;
- splits ovals containing two views/concepts;
- pays attention to people who seem to be not really involved and makes sure every- body contributes. If people are reluctant to join, he/she talks to them, writes their concepts on ovals and sticks these on the wall;
- manages time;
- gets participants active again if the process slows down, by asking, e.g., *how*, people think they will achieve some of their views or values.

5. A second main task for the facilitator is to structure the material. Concepts which are related are placed if possible in the same area on the wall. The group map that is being built should be hierarchical with the single most important goals of the participants at the top. The facilitator
   - encourages the participants to cluster their concepts themselves. If they are uncertain about in which cluster concepts belong, they can put them to the side;
   - separates ovals which form potential clusters and places them in such a way that there is plenty of space around them;
   - breaks up the old clusters, if new material indicates the existence of new clusters (themes);
   - places broadly based ideas towards the top of clusters: works towards hierarchically organised cause maps;
   - numbers the ovals.
6. The map will be reviewed and the facilitator will make sure the concepts are in place. The clusters are labelled. With the aid of the map, the facilitator discusses the issue with the participants. The new information which results from this discussion is also written down on ovals and integrated in the map. The facilitator:
   - goes through the draft clusters and makes sure the concepts are in the relevant cluster;
   - discusses with the participants whether the ovals at the top are really the most superordinate and the ones nearer the bottom the most subordinate;
   - draws links when the oval are repositioned, keeping in mind the hierarchical nature of the map;
   - encourages participants to write down new information which emerges from the discussion on ovals and stick them on the map;
   - labels clusters;
   - tries to integrate the ovals which were put on the side or capture their meaning.

7. The meeting is ended by the facilitator who:
   - thanks the participants for their hard work and willingness to cooperate;
   - emphasizes the relevance of the map for feeding the policy table or process architecture, instruments which will be used later on.

In the pilot study we learned that it was quite practical to first have a brainstorm on which actors have a stake in the issue before addressing the main question. That is why the making of a list of actors who had a stake in the issue, was added to the process above. Identifying stakeholders is an optional activity which Eden and Ackermann may do at the end of an oval mapping session.

After the session, the various participants go back to their offices and the policy adviser makes a draft proposal for the process architecture with the aid of the map which the participants have constructed. The facilitator leaves and participants in both the control and the experimental groups will follow the same steps of play. A second sounding-board meeting will follow in, which this draft is discussed and amended. After another round of more informal talks on the basis of which the policy adviser will rewrite the proposal, the final draft is prepared and, subsequently, presented to all participants in a city meeting.

Table 5.1 gives an overview of the first round of BANS and how the intervention relates to steps-of-play.

Table 5.1 BANS steps of play: round 1

BANS	**BANS + oval mapping technique (OMT)**
Introduction (9:45-10:15)	Introduction (9:45-10:15)
1. Analysis policy issue (10:15-11:00)	1. Analysis policy issue (10:15-11:00)
2. 1st sounding-board meeting (11:00-12:00)	1. 1st sounding-board meeting (11:00-12:00) in which the facilitator introduces OMT
2. Design process architecture (12:00-12:30)	3. Design process architecture (12:00-12:30)
4. 2nd sounding-board meeting (14:00-14:45)	4. 2nd sounding-board meeting (14:00-14:45)
5. Design final process architecture and evaluation policy issue (14:45-15:15)	5. Design final process architecture and evaluation policy issue (14:45-15:15)
6. City meeting 15:15-16:15	6. City meeting 15:15-16:15
7. Evaluation/debriefing	7. Evaluation/debriefing

Table 5.2 BANS steps of play: round 2

BANS	**BANS + oval mapping technique (OMT)**
Introduction	Introduction
1. Orientation (9:15-9:45)	1. Orientation (9:15-9:45)
2. Prepatory consultation for 1st city meeting (9:45-10:30)	2. Prepatory consultation for 1st city meeting (9:45-10:30)
3. 1st city meeting (10:30-12:30)	3. 1st city meeting with OMT (10:30- 12:30)
3b. break	3b. break
3c. 1st city meeting- part 2	3c. 1st city meeting- part 2 with OMT
4. strategy meeting (13:45-15:00)	4. strategy meeting (13:45-15:00)
5. Second city meeting: presenting strategies (15:00-15:45)	5. Second city meeting: presenting strategies (15:00-15:45)
6. Evaluation	6. Evaluation

The second day is similar to the first day (see Table 5.2). All fourteen participants will become involved in making a policy, viz., 3 policy strategies for one issue, the light pollution issue. The group will be assisted with an intervention based on the oval-mapping technique in steps 3, 4. Subsequently, the policy advisers use the group map to prepare a policy table[3] which will be used in subsequent meetings to design three strategies. At the end, the strategies are presented in a plenary city meeting. Table 5.2 presents an overview of the second round of BANS with the intervention for the experimental group.

5.5 Summary

This chapter describes the problem-structuring method Strategic Option Development and Analysis in greater detail. An overview is presented of the theories which influenced the development of the approach. The various techniques which can be used in a SODA trajectory are discussed. Cognitive or group mapping is central to the approach. Both the design of our research and our understanding of problem structuring presents us with time constraints for the intervention. As a result, characteristics of the oval-mapping technique were chosen as our stimulus. It

3 The instrument of the policy table will be described in Chapter 6.

is a manual mapping technique: a facilitator assists a group of people in writing and structuring ideas on a particular issue on oval-shaped cards which are stuck on the flip-over sheets on the wall. The intervention procedure is described in detail.

6. A tale of six cities and one game/ simulation

6.1 Introduction

This chapter is a prelude to the following chapters, in which the results of this study will be presented. It offers information on the game/simulation BANS and its participants. First, the six municipalities which participated in the game/simulation will be discussed (section 6.2). Next, the main characteristics, roles, issues and steps-of-play in the game/simulation BANS will be introduced (section 6.3). In section 6.4, an in-debt account, based on the observation transcripts, will be given of the interactions during the game/simulation. Given the great quantity of observation data, the choice was made to present a summary of the run played by municipality 6. The developments concerning one of the four issues - the coffee shop issue - on the first day is described. Next, the second day of the game is described, in which all participants become involved in one issue: light pollution. In section 6.5 we will reflect upon the differences between the intended application of the oval-mapping technique and the actual characteristics of the applied technique. Section 6.6 presents the conclusion.

6.2 Six municipalities

In this section, the teams of the six municipalities which participated in this research are introduced. The descriptions are partially based on questionnaires,[1] city council publications and the observation protocols of the runs. Characteristics such as size, geographical location of the municipality, type of position and work experience of the team members are presented.

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1 This information was gathered by means of the questionnaires the participants answered preceding and at the end of the first day, and again at the end of the game/simulation (see Appendices 2-4).

Table 6.1 The six municipalities and their teams

	control group			**experimental group**		
	municipality 1	*municipality 2*	*municipality 3*	*municipality 4*	*municipality 5*	*municipality 6*
no. of inhabitants	200000	120000	136000	60000	25000	22000
geographical location	middle south	south east	middle	north	middle west	middle south
age 20-35	1	3	1	1	8	1
36-45	3	5	3		3	4
46-55	7	6	7	12	2	7
56>	3		1	1		2
position of civil servants of the municipalities (Other stakeholders are not included here)	policy development staff	policy development staff	diverse senior civil servants + politicians	heads of divisions	cross-organizational mix of junior and some senior civil servantws	cross-organizational mix of senior some junior civil servants and local politicians
work experience in years 0-3	5	7	6	4	7	7
4-8	7	3	4	5	4	-
9-12	1	3	1	2	1	1
>12	1	1	1	3	2	5

	control group			experimental group		
	municipality 1	*municipality 2*	*municipality 3*	*municipality 4*	*municipality 5*	*municipality 6*
relationship with team members	familiar	familiar	reasonably familiar	familiar	reasonably familiar	familiar
similarity of interests	very 2 somewhat 4 diverse 5	6 2 6	3 3 5	2 2 10	3 6 4	3 10
differences of opinion	few 6 some 6 many	7 6	9 1 1	8 2 4	11 3	6 2 5
personality conflicts	none/few 12 some many	14	11	13 1	12 1	13
observed team characteristics	- holistic/ integral - 2 facilitating players (incl. 1 formal leader) - (self)-critical	- integral - 1dominant player (informal leader) - critical	- action-oriented - 2 potential leaders	- anxious: more reluctant players - hierarchy based on status, not on events/ behaviour	- polarization of interests	- focus on procedure

Sources: 1 = municipal report, 2-9 = questionnaire preceding the game (appendix I), 10 = observation transcripts

In addition, behavioural characteristics which were observed during the game/ simulation are described. In Table 6.1 some of the main characteristics of the six municipalities are presented. On the basis of these data we will assess whether the two research groups are similar.

6.2.1 Region and municipality size

The municipalities are situated in various parts of the country and differ in size. The control group consists of larger municipalities. This uneven distribution over the two groups is partly the result of the methodological decision to assign municipalities either to the experimental or to the control group according to their order of recruitment. Since it is conceivable that civil servants working for large municipalities are better trained to deal with complex issues than those in smaller towns, municipality size seemed a variable which needed to be controlled.[2] In the course of the process the attempt to create more balanced groups had to be abandoned for practical reasons.[3]

6.2.2 Sex, age, type of function and work experience

Some of the characteristics of the teams presented in Table 6.1 are age, type of position and work experience. Not included in the table is sex. Both groups consisted predominantly of men; only municipalities 3 (control group) and 5 (experimental group) included approximately 35% women. Women are still rare in more senior positions, also in Dutch local government.

The participants in both groups were, on average, between 45 and 55 years old. The team of municipality 4 was the most senior by age, and municipality 5 stood out as a comparatively young team.

Considering the type of positions the team members had, most teams consisted of senior civil servants. The control group included two teams (municipalities 1 and 2) which represented a policy development unit, a staff unit specialized in advising aldermen and civil servants on developments in (strategic) policy and administration. The experimental group included more civil servants and heads of departments (e.g., social or environmental affairs). Both the experimental and the control groups

2 In large municipalities many policy areas will demand more specified knowledge and may involve a larger variety of interests. For instance, public order issues of a relatively prosperous small town will be of a different nature than those of large towns with deprived inner city areas.

3 We had planned to introduce the mapping technique in municipality 3, which was the fifth municipality we recruited. Following the random assignment method, it would have been assigned to the control group. Since the room in which we played BANS in municipality 3 turned out to be too small to work with the technique, it was assigned to the control group.

consisted of about the same number of local politicians (4 to 5) participating in the game.

In addition to municipal representatives, the teams included representatives from related profit and non-profit organizations. Our aim to simulate in this way existing policy networks did not really come through (cf. section 4.6.5).

The participants in the experimental group had, despite the fact that it included a team of fairly young civil servants, somewhat more work experience in their present positions.

6.2.3 Social groups: Interests and conflicts

From the questionnaires the participants answered before the game/simulation started, it became clear that participants in both groups were well acquainted with their team members. The teams from municipalities 3 (control group) and 5 (experimental group) were less well acquainted with one another. Municipality 3 is a rapidly growing new town, so new staff (also seniors) are recruited regularly. The team from municipality 5 also consisted of a number of fairly recently recruited civil servants from various departments. Both groups tended to consider the interests they represented reasonably diverse. There was a trend that the experimental group held somewhat more diverse interests than the control group ($F(1,64) = 3.18$, $p = 0.08$). Particularly, municipalities 4 and 6 of the experimental group pointed out that interests within their team differed. Participants from these two municipalities had to deal with conflicting opinions about work-related issues somewhat more frequently than the other teams. Despite the diversity of interests, the participants in both groups had, overall, experienced few conflicts of opinion about work-related issues. Personality conflicts between the team members were virtually non-existent in all six municipalities. The participants in both groups appeared to have entered the game/simulation as fairly conflict-free teams.

6.2.4 Team characteristics demonstrated in BANS

Finally, Table 6.1 also presents some distinctive features which characterize the various teams while playing the game/simulation BANS. These characteristics are deduced from the observation transcripts and will be discussed for the various municipalities separately. Variables included are: the degree to which participants were linking issues;[4] the degree to which participants were involved in and reflecting

4 The linking of whole policy issues is distinguished here from the linking of different aspects into ideas, and ideas into issues which refers to the criterion 'aspect integration', one of the dependent variables in this study.

on the game; the degree to which the group was dominated by a leader; and the degree of conflict and hierarchy in the team.

In municipality 1, participants tended to think holistically: they continuously advocated an integral approach to the issues presented to them on the first day of the game. Furthermore, two of the participants played an important role (without being overtly dominant) in managing and facilitating the process they were involved in. They stood out as attentive process managers who paid close attention to the various interests displayed. One of them was the head of a department. Hardly any participant put forward her or his own interests. There was a clear tendency to choose a multi-perspective view of the issues. At the same time, the majority of the participants were critical. Some strongly questioned the analytical distinction made in the game/simulation between process and content on the first and second day. Also, some were very self-critical in the evaluations.

The team from municipality 2 shared some of these characteristics. Here, there was one participant who overtly dominated the game with his ideas and social skills. He introduced a combined integral and regional approach to the issues and convinced the others of its merits. The participants from municipality 2 were also critical, but they were, above all, critical of the ideas of some of their fellow participants and reluctant to accept the advice given by the facilitator they hired (played by the game facilitator). On the second day the team opted for an alternative process architecture to the one BANS provided.

The team from municipality 3 focussed somewhat more on action than on reflection in comparison with the previous two municipalities. Participants repeatedly drew parallels between what they experienced in BANS and in their own municipality in which everybody is very busy and occupied all the time. As a result, communication between departments is often frustrated, since people are so busy with other tasks that they lack the time to consult with other departments and adjust policy accordingly. Like the participants from municipality 2, the team willfully opted for an alternative process on the second day.

The team representing municipality 4 appeared to function as an 'old-boys network'. The representatives of the municipality were used to going on excursions together and for some the game/simulation had a similar function. There was a clear sense of hierarchy and participants were sensitive about losing face. The participants were more action than reflection-oriented.

The team from municipality 5 was not only mixed in as far as age and experience are concerned, but also showed a variety in behaviour. Some were overtly consensus seeking, others were unwilling to compromise and took a strong position. The result was a polarization of interests which increased in the course of the game/simulation.

Finally, the last team was more procedure-oriented than the other teams. This was most evident in the plans they designed and presented. Furthermore, they were meticulous in their approach to the issues presented to them.

6.2.5 Do the groups differ?

Above, we discussed a number of characteristics of the control and experimental groups. These data are based on questionnaires and observations. There is little difference in general characteristics such as age and sex, nor do the groups differ in the number of years of work experience. Although the experimental group appears to consider itself somewhat more diverse in the interests it represents, there is no difference between the two groups as regards the extent of personality conflicts among team members or conflicts of opinion about work-related issues. Overall, both groups indicate that there are few conflicts of opinion as regards content and virtually no personal conflicts. However, the groups do differ in two respects. The control group consists of larger municipalities, and the teams within the control group consisted predominantly of civil servants working for a policy development unit. This may explain why these participants were more inclined to think holistically, link policy issues and reflect critically on the topics they discussed.

6.3 The basic design of BANS

6.3.1 Main characteristics of BANS

As explained in Chapter 4, BANS has been developed for a civil servant training institute as the final part of a course on participatory policy-making. Its aim was to provide the students - who were all experienced civil servants - with a safe environment in which they could apply the knowledge they had acquired during the course. BANS was thus developed for training purposes.

The game/simulation simulates the municipality of Beneveld. Beneveld represents a large town in the Netherlands with approximately 160,000 inhabitants. It is a rather prosperous town where, after a period of industrial decline, new industries were attracted. The city has a university, a number of schools for higher vocational training, and a prosperous cultural sector.

In Table 6.2, the main characteristics of BANS are presented. Policy-making in the municipality involves three categories of players: policy advisers (civil servants), local politicians (mayor, aldermen and councillors) and stakeholders. Transfer, one of these stakeholders, is a major industrial estate in the western part of the city. There are 25 firms located at the estate and together they employ 10,000 people. The companies cooperate on matters concerning the estate. Calimus is a village of 15,000 inhabitants, which is situated to the west of Beneveld. Its problems are typical for

smaller municipalities which border on large towns. Recently, it has only just been able to avoid being joined together with Beneveld.

Table 6.2 Structure of BANS

goal	***orientation***	***issues***	***14 roles***
day 1: process architecture	process	light pollution housing issue A206 coffee shop issue	4 policy advisers 4 mayor/aldermen/councillors 2 Transfer 2 Welfare Foundation 2 Calimus
day 2: policy-making	content	light pollution	

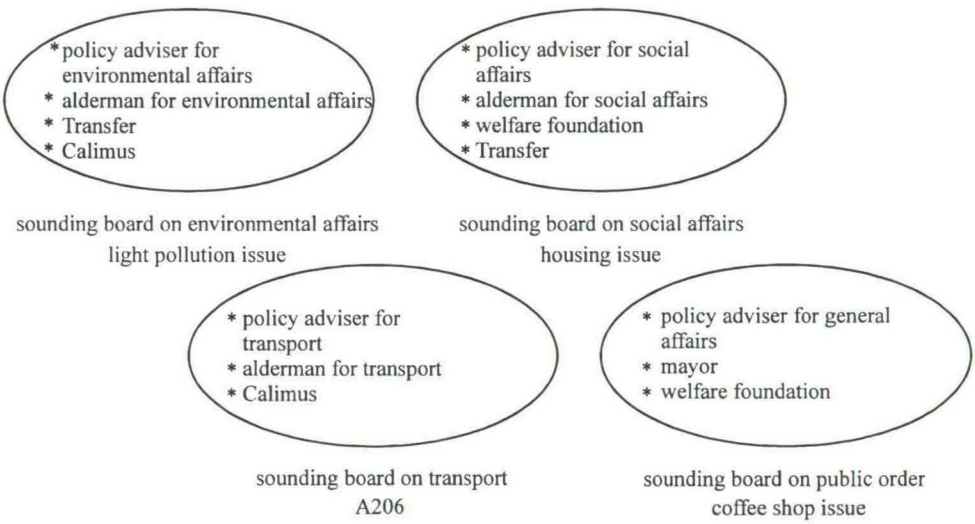
The Welfare Foundation is an umbrella organization representing approximately 100 health and welfare organizations and organizations in Beneveld in the field of culture, sports and environmental issues. They assist their members in their contacts with local government. They prepare and take part in negotiations. Furthermore, they stimulate cooperation among their members.

6.3.2 The first round

The game/simulation takes two days, and consists of two rounds. In the first round (day 1), high on the city's policy agenda are four issues which predominantly concern the western part of the city. Firstly, there is the light pollution issue, which involves a new policy area concerned with inconvenience caused by the lighting of, e.g., industrial estates and pitches. A second issue is the housing issue. Beneveld has a number of welfare organizations which need new accommodation. Simultaneously, a number of schools face budgetary problems because they have too many empty classrooms due to the decline in pupils. Thirdly, a new motorway, the A206, is planned west of the city. National government already decided the approximate route, but the city council has been given some discretion in determining its exact location; it will have to run either through an old historical park or through a modern sports centre. Finally, there is the coffee shop issue, which involves problems caused by soft drugs outlets in the city. The fourteen participants in the game/simulation had one of the four issues as their major concern. The subgroups met several times in a sounding-board meeting in order to discuss one of the issues. These so-called sounding boards are relatively new institutions in the municipality. They were created to facilitate a more participatory style of policy-making the city council aspires to. The sounding boards include representatives from the municipality's policy network, who are involved in a particular field. Figure 6.1 presents an

overview of the four sounding boards with their corresponding issues and members. The sounding boards are presided by four policy advisers (civil servants), who are responsible for developing - together with other parties involved - a *process architecture* (plan of action) for the four issues. This is a plan which specifies 'who will talk to whom about what topic at what time'. In other words, it explains how the decision-making process concerning an issue will evolve and what steps will be taken.

Figure 6.1 The sounding boards, their members and issues



Summarizing, in the first round of BANS the focus is on process rather than content: participants are asked to design a process architecture. Both the process architecture and the sounding board are instruments which are introduced to the game/simulation to persuade participants to adopt a more process-oriented and participatory style of policy-making. Another instrument which serves this purpose and which is introduced to the players in both rounds is the actor analysis. It assists the players in identifying the nature of the interests of the various parties, their influence and expected behaviour.

6.3.3 The second round

In the second round, participants change roles, except for the externals who play the roles of Transfer and the Welfare Foundation. The players start developing a policy for one issue, the light pollution issue. All fourteen participants become involved in

developing approximately two or three alternative policy strategies for this issue. BANS provides a process architecture for the second day, which specifies step by step how to design the strategies. This plan ensures that the participants have several plenary sessions (city meetings). In between, they meet in smaller groups or in twos.

As in the first round, the participants make a stakeholder analysis and use an additional instrument suitable for participatory policy-making, viz. a policy table. This is a structuring device which helps categorizing issue aspects into three main categories: goals, decision areas, and options (see example in section 6.4.2). Ideas shared among different groups can be traced and serve as starting points for policy implementation. With the aid of the policy table, different strategies can be drawn.

Table 5.1 and 5.2 provide an overview of the agenda of both days and indicate when the facilitator introduced the technique. As indicated above, the experimental group was assisted by facilitators who introduced the oval-mapping technique in the second step-of-play on both days in order to assist the participants structuring the policy. In all six runs of BANS, the participants were assisted by the same game-facilitator. In the following section, a summary will be given of how municipality 6 went through these steps-of-play of the game/simulation.

6.4 Policy-making in a game/simulation in municipality 6

6.4.1 BANS, Day 1: Drawing up a process architecture for the coffee shop issue

Introduction

The game/simulation started with the fourteen participants being welcomed to the City of Beneveld. Three participants will have as their main responsibility the coffee shop issue. They are the mayor, the policy adviser for public order, and a representative of the Welfare Foundation. Their issue concerns a number of outlets selling (soft) drugs, which are referred to as coffee shops. The local government has made a covenant with the local coffee shops. However, the coffee shop owners do not observe the arrangements laid down in the covenant. Neighbourhood councils have warned the municipality that hard drugs are being sold and that the use of drugs causes inconvenience in the vicinity of these outlets. The local government now considers exploiting its own shop as a means to regulate the use of soft drugs. Relocating the shops away from the city centre to reduce inconvenience is a measure which is also being considered.

After the participants have been informed about their identity and task, the game starts with an orientation phase.

Step 1: orientation

All 5 groups of actors gather in their various offices to concentrate on their manual, which gives further explanation about their various identities, hopes and aspirations in their professional lives. The manual also includes a small guide which gives an outline of the day's events. Participants are told to prepare for a sounding-board meeting. The sounding board is a fairly new instrument introduced by the municipality of Beneveld, which aspires to a more participatory style of policy-making. A number of boards have been formed in order to early involve representatives of the societal network in the policy-making process.

The participants read their manual in silence and there is little informal contact between the organizations. The game facilitator informs the policy advisers that in the sounding-board meetings, they will be assisted by a facilitator who will use a technique to generate and structure ideas, which they can then use for their process architecture[5]. In the meanwhile, the mayor and aldermen discuss the motorway extensively and briefly touch upon the other issues. The mayor explains that he has to deal with the closure of coffee shops and that he is not in favour of immediate action.

Although they are not members of the sounding board concerned with the coffee shop issue, the representatives of the neighbouring village Calimus discuss the issue extensively. They are not in favour of a municipal coffee shop but concede that they have few means to influence the decision-making in Beneveld. Besides, since Beneveld gets extra financial support from the national government for controlling drug-related problems, they might as well take responsibility for the coffee shop issue.

The representatives of the Welfare Foundation agree that a municipal coffee shop is undesirable. The actual selling of soft drugs is not the task of a municipality.

Step 2: the first sounding-board meeting

The mayor and policy adviser who are concerned with the coffee shop issue come together for their first sounding-board meeting. They are welcomed by a facilitator, and while sitting down in a half circle in front of a wall covered with white paper, they immediately engage in a discussion. The representative of the Welfare Foundation joins them.

Their discussion is directed at sharing information on the content of the covenant and the nature of the inconvenience caused. The sounding-board members

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5 Municipality 6 is part of the experimental group and is hence informed about the facilitator who will come and assist them in the first sounding-board meeting.

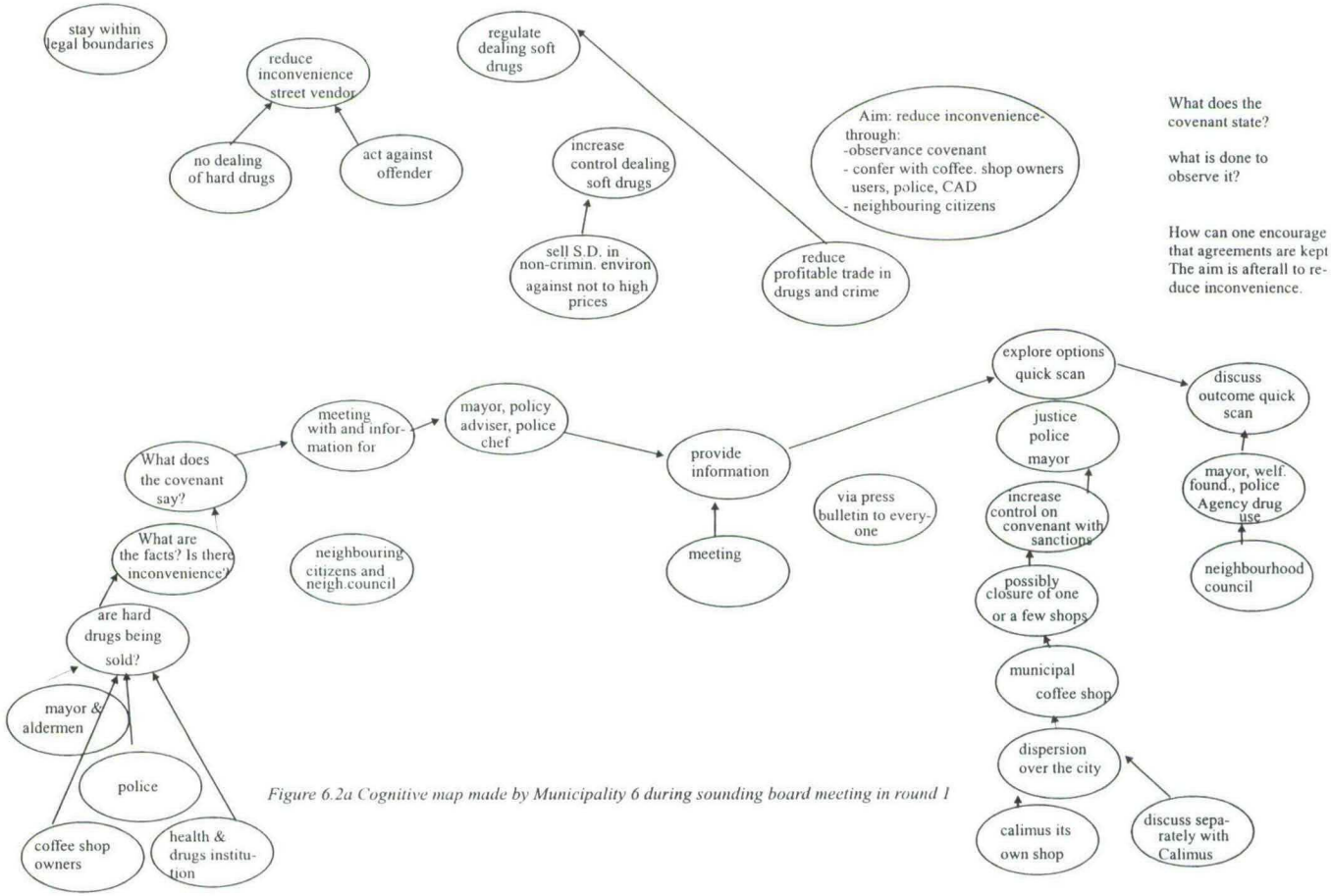

Figure 6.2a Cognitive map made by Municipality 6 during sounding board meeting in round 1

Figure 6.2b Cognitive map (made by researcher) of first part of discussion to sounding board meeting by M6

thus jointly trace the best possible way to tackle the issue. They consider the advantages and disadvantages of relocating or decentralizing the coffee shops.

The facilitator intervenes in what has so far been a very constructive discussion among equals. She explains that she has been asked by the municipality to assist the board in organizing the various ideas and to help structuring them. These can then serve as input for the process architecture. She distributes oval-shaped cards and markers and asks the participant to write down ideas which come to mind when they read the question she has written in the corner of the papered wall: *What should the aim of coffee shop policy be and what action needs to be taken to achieve this aim?* This trigger question mirrors the focus of the first day of the game/simulation which concerns process. The technique is used to first generate ideas on the issue and then switch to ideas for the process architecture (see section 6.3.2). In SODA-approaches the focus is on issue-content and not process.

Initially, the participants feel somewhat inconvenient but they soon get involved in the process of generating ideas and sticking them on the wall. With the aid of the facilitator ideas are arranged in a certain way. (In Figure 6.2. the oval map produced by the group is presented.) The actions they come up with are formulated and weighed in close deliberation. The discussion concentrates on when citizens should become involved. The Welfare representative argues that it should be from the first phase onwards. However, both the mayor and policy adviser think that it is sensible to gain more insight into the problems before starting a discussion with citizens. Another point of debate is who should become involved in the quick scan and whether already certain solutions should be excluded at this stage of the policy-making process. The meeting can be characterized as very open and the participants are very cooperative. After the meeting is finished, the participants return to their offices.

Step 3: designing a process architecture

While the various participants brief each other about their experiences with the sounding-board meetings, the policy advisers remain seated in front of their respective maps and work solitarily on their draft version of a process architecture. The majority of the council of aldermen agree that the municipal coffee shop is still a conceivable option. The mayor explains that the Welfare Foundation was more cooperative than expected but that they are still at the very beginning of the process. The Welfare representative briefs her colleague which actors will be involved and explains the mayor's position concerning the municipal coffee shop. They then switch to another issue.

The representatives of Calimus are visited by the Welfare representative, who is interested in their view on drugs and the number of users in the village. Calimus

replies that they are really too small for a coffee shop. The Welfare representative agrees that Calimus is not a likely location and asks whether the municipality can make enquiries about what the parents of youngsters using soft drugs think of the issue. They conclude that there should be no coffee shops in residential areas.

Step 4: the second sounding-board meeting
The policy adviser presents his draft of the process architecture. First, the problems will be listed. There will be a preparatory meeting led by the mayor with the policy adviser and the police; they will explore facts and complaints. The mayor interrupts the presentation and asks why only these three parties will participate in this first meeting. The policy adviser argues that the information available to the police should first be reported in a small circle. He then proceeds with the next phases of his draft proposal. The Welfare foundation will participate repeatedly in the process. The Welfare representative does not agree with this. She emphasizes that it is important to organize and implement affairs as close as possible to where they are happening. As an umbrella organization, they are not the right institution to discuss drug problems with. Social workers are better interlocutors, she argues. She also points out that youngsters should be approached as full participants in the process. They should be formally invited, by, for instance, the alderman for welfare. The discussion continues with the idea of the municipal coffee shop and the need for stronger enforcement of the covenant. Sanctions should be made transparent. The mayor advocates tit for tat. Another option which is discussed is a decentralization approach. The policy adviser asks who should become involved in discussing options. The mayor advocates a quick scan by the police, the Welfare Foundation and the Alcohol and Drugs Agency. The Welfare Foundation points out once more that it is important to involve the neighbourhood council from the start. Subsequently, the meeting is finished and the policy adviser says he will finalise the process architecture.

Step 5: making a definite process architecture
After the sounding-board meetings have ended, the policy advisers start working solitarily on a final proposal which they will present in the city meeting in which the various representatives will participate. All participants fill out questionnaires - as they have been doing repeatedly during the day - and discuss their experiences with their colleagues, but also seek informal contact with the others.

Figure 6.3 Process architecture of municipality 6 for the coffee shop issue

Process architecture		
what	**who**	**result**
regulate goal reduce inconvenience		
preparatory meeting	- mayor - police commissioner - adviser	- establishing facts - checking covenant - preliminary positions
conference with coffee shop owners	- (see above) - coffee shop owners - Centre on Alcohol and Drugs (C.A.D.)	- establishing facts - exchange viewpoints - announce measures - direct action
- inform commission on general affairs - inform public - press release	- mayor - police commissioner - adviser	- inform - exchange preliminary viewpoints
- deliberating with *neighbours/ neighbourhood council * visitors shops	- (see above) - Welfare Foundation - C.A.D.	- information exchange - exchange preliminary viewpoints
explore various options	- mayor - police - judiciary	- research feasibility - consult third parties - preliminary measures
discuss feasible options	- mayor - police/ adviser - alderman for planning - C.A.D. - Welfare/ neighbourhood council	- select options of preference - establish priorities - establish strategy
inform commission on general affairs on preferred option and strategy	- mayor - police - adviser	- agreement on options and strategy
taking direct actions	- mayor - advisers - police	- implement tightened control
- inform citizens neighbourhood about measures	- mayor - adviser - neighbourhood council - police	- inform - explain
- inform coffee shop owners	- police - mayor	- confront / reach agreement

Step 6: city meeting

The city meeting is opened by the mayor, who welcomes all participants and briefly explains that in this session the various process architectures for each of the cases will be presented. The game facilitator explains the procedure: first the policy adviser for the light pollution issue will present his proposal, after which the members of the meeting can ask for clarification. They will then be asked to evaluate the proposals.

The policy adviser for public affairs is the last in the row to present his plan. He briefly sketches the aim of the covenants with the coffee shop owners and explains that they will first do some fact finding to get a better understanding of the issue. Simultaneously, actions will be taken to demonstrate to the various parties that Beneveld is serious about enforcing its soft drugs policy. Subsequently, he touches upon the main steps of his process architecture, which are presented in the figure below.

The Welfare representative expresses her satisfaction with the plan. An alderman explains that he is relieved that the plan does not include a municipal coffee shop, something his council had mixed feelings about. There are some questions on the part of Transfer and Calimus, who wonder whether sanctions can be enforced. Then the mayor calls it a day and the game leader explains that they have reached the end of the first day of BANS, and invites the participants to engage in an evaluation.

6.4.2 The second day: making policy strategies

Introduction

The previous evening, most participants - except for the externals playing the representatives of the Welfare Foundation and Transfer - have changed roles. On this second day, all participants will become involved in one issue, the light pollution issue. There are 13 players: one policy adviser injured his foot in a football match the previous night. One new institution - two members of the city council - is present on this second day of the game (these roles replace those of the mayor and an alderman). One is the chair of the largest party, the Christian Democrats. The other is the chair of the committee for environmental affairs.

The light pollution issue is an old case. The municipality of Beneveld has made little progress with this issue since it first appeared on the policy agenda. It is already a year ago that the first cautious attempts were made to design a process architecture. Beneveld still hopes to set an example with this pilot for future policy makers in other cities. The Ministry of Environmental planning has announced that it will subsidize the development of policy in this field. Furthermore, the ministry has

issued a directive regarding the maximum inconvenience light may cause by 2010. In the meantime, the alderman for economic affairs has succeeded in attracting a major supermarket chain to Beneveld, which has started a distribution centre in Transfer, the town's major industrial estate. As a consequence, Transfer wants to intensify its lighting. Neighbouring Calimus is not pleased with this plan. They have already received many complaints from the citizens near the estate. There have also been complaints about the sports centre, which also causes inconvenience with its lighting.

The policy advisers are assigned to produce a number of strategies with the aid of a policy table (see Figure 6.5).

Step 1: orientation

The participants again meet first in their various offices, where they find a manual with more detailed information about their role and the issue. As in most of the games, this first step on the second day is much more lively than on the first day. There is a high level of inter-organisational interaction. Some of this is briefly described below.

The two aldermen discuss the possibility of a technical solution to the problem. The alderman of economic affairs seems rather undisturbed by the issue and points to a previous experience with a firm, in which case different bulbs ended the inconvenience caused.

The policy advisers brainstorm together on the various aspects which they think are relevant to the issue: its environmental sides, health, safety of buildings, and roads. The adviser for economic affairs gives an explanation about the new distribution centre of a large supermarket chain which needs more lux[6] than what is presently being provided. He suggests designing a parallel trajectory focusing on the pilot project[7] on the one hand and simultaneously solving the problems of Transfer.

The representatives of Calimus agree that their main goal is the reduction of inconvenience caused by the light pollution, and that their sub-goal is safeguarding employment. Subsequently they split up. One representative visits the alderman of economics, who points out that for the sake of employment, Transfer will need more light. Calimus agrees that employment is important, but not at all costs. He suggests rezoning the most polluting firms.

The chair of the commission visits Transfer. He explains that research is being conducted into the inconvenience caused by light pollution and enquires whether

6 Lux is a measure for light intensity.

7 The pilot project refers to the fact that the light pollution policy Beneveld intends to develop will serve as a pilot for the national policy.

Transfer is willing to participate in it. Transfer's representative declines: 'already too much money is being spent on this type of research.' His associate thinks win-win situations can be created, since people living in the neighbourhood of Transfer are increasingly illuminating their houses for security reasons.

The representatives of the Welfare foundation are visited by Calimus and enquire about the kind of inconvenience the industrial estate causes. When Calimus has left, the two councillors drop by. They are interested in the kinds of problems residents of Beneveld have with the sport complex. In the meanwhile, Calimus visits the Welfare Foundation in order to find some common ground and advocates a joined approach for an integral light pollution policy. One of the Welfare representatives wonders aloud what is troubling residents; curtains and shutters should help, she thinks. 'So, what is so terrible?'

The commission's chair and the alderman of economic affairs address the promises the latter has made to the distribution centre. Both agree that the costs should be borne by Calimus, Transfer, and Beneveld. The alderman of environmental affairs, however, considers Transfer solely responsible. The aldermen are then visited by Transfer. A fierce debate with the alderman of environmental affairs emerges. Transfer argues that they should never have built houses so near to the estate but, he repeatedly emphasizes, he is willing to cooperate and think along about possible solutions.

Step 2: a city meeting

All participants have been invited by the advisers of Beneveld to join a city meeting. The alderman for environmental affairs chairs the meeting and describes the light pollution issue as a security issue with economic aspects. He explains that there are some conflicting characteristics. The representative of Calimus interrupts arguing that regulations exist on lighting in public areas etc. He is thanked for his contribution and the floor is given to an external facilitator, who has been hired by Beneveld to assist the process. He briefly explains his approach: he will use the oval-mapping technique to make visible the various ideas people have on the issue. First, the participants will have 10 minutes to write down their organization's ideas on oval slips of paper, after which all the organizations will be asked to present their views in turn. These will be stuck on the wall and the facilitator will structure them. With the aid of these ideas, the policy advisers will then make a policy table, which will be presented to the participants.

After the break, Calimus is given a first turn to put forward their ovals. They desire a reduction of inconvenience caused by light. Calimus doubts the necessity for more lux. They want this to be investigated. They formulate additional goals and queries, upon which the facilitator thanks them and briefly summarizes the ideas,

inviting Transfer to share their view. One by one the various organizations explain their views and the facilitator arranges the ovals on the wall. The result can be seen in Figure 6.4.

A point of discussion is whether to pursue a national policy or first to solve the local problems. Opinions also differ on what is acceptable inconvenience and what is not.

The meeting develops in a friendly atmosphere. The participants are attentive and interested in the various contributions. The facilitator winds up the meeting and explains that now the policy advisers will start working with the ideas of the map. Everyone will later be welcomed for a new round of talks.

Step 3: break city meeting

In Calimus, the representatives confer on the city meeting. They argue that Transfer's strong position leaves little room for manoeuvre. Beneveld is perceived as arrogant for they do not seem eager to talk to Calimus. Hence, Calimus concludes they need to be careful. Transfer drops by and asks whether they realize that their interests runs against the interests of the environment. Calimus argues that they will not oppose the enlargement of Transfer, provided their citizens will experience less inconvenience. 'So, we all see the benefits of a technical solution', Transfer concludes. The councillor of the Christian Democrats also drops by and draws a parallel with noise pollution.

While everyone is going for lunch, the three policy advisers continue to work on the policy table. They are assisted by the facilitator, who gives examples of how to approach the matter. 'It is striking, that few concrete items have been mentioned, perhaps we can think of some' the facilitator suggests. He explains that the policy table does not have to be complete, people can add ideas. Furthermore, he suggests forming three groups each of which will design a strategy by choosing options which fit one of the three goals he suggested earlier on: environment, employment, well-being. The policy advisers and facilitator generate various options, which they write down in the table. The facilitator rounds of the session with the suggestion a distinction should be made between short and long-term options.

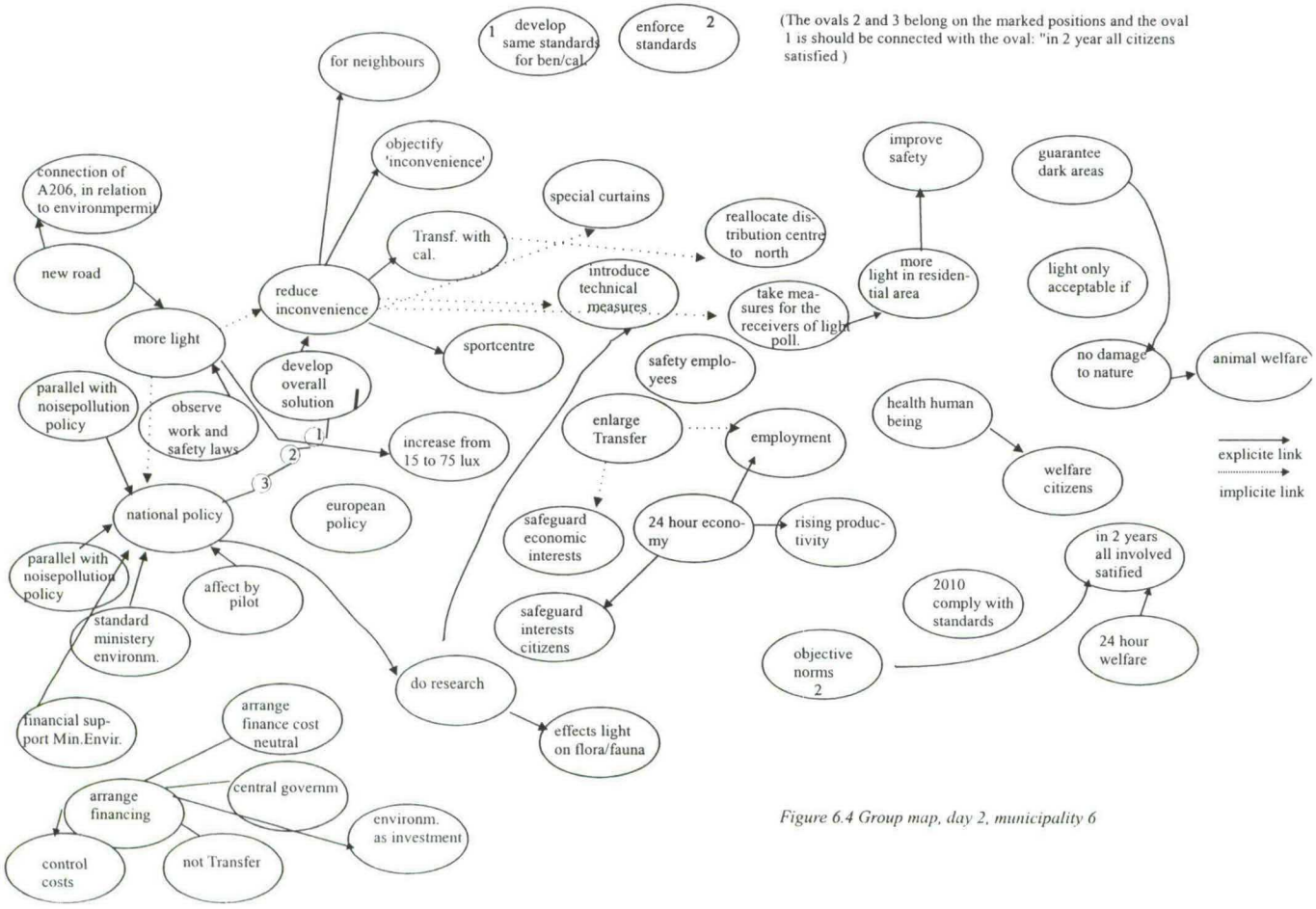

Figure 6.4 Group map, day 2, municipality 6

Step 4: strategy meetings

After the lunch break, all participants join again in a short plenary session, which one of the policy advisers illustrates the policy table (see Figure 6.5). Then the game facilitator explains that the aim of the table is to postpone decisions as long as possible, and develop parallel ideas on decisions. He suggests forming three groups on the bases of the three goals: economy and employment, environment and nature, and well-being

The subgroup that forms a strategy favouring the economy and employment is very much dominated by the councillor who chairs the Christian Democrats. He repeatedly objects to choices being made at this stage of the process. Several times, the policy adviser who is chairing the session tries to redirect attention and asks which option they should choose in the first column of the table. He eventually succeeds, and for most decision areas, the group makes its choices. They want to cooperate, enlarge the estate, increase the number of lux, but this should be done cost-neutral.

In the sub-group that designs a strategy benefiting welfare, the discussion first focuses on the route of the new motorway, since, according to the Welfare representative, this might force them in due time to change policy again. The commission chair suggests distinguishing between short term and long term policy. The policy adviser advises continuing the discussion with the aid of the table but initially the group has difficulty submitting to the pattern of the table. After choosing short-term options they continue with the long-term policy. Technical solutions and solutions around the house are chosen as short term options. Transfer will be financially involved, in that it will pay for adjustments on their grounds. The municipality and possibly citizens will also share financial responsibility. The Welfare representative concludes towards the end that citizens are not sufficiently heard.

In a relatively short, the third group designs time a policy for nature. It works its way through the table methodically. There is a clear willingness to reach consensus on the various options.

Step 5: 2th city meeting

In this meeting, the three strategies are presented. Various questions arise about particular choices. After every presentation, of a strategy the participants score it on a questionnaire. The game facilitator invites participants to change back to the real world and evaluate their experiences.

Figure 6.5 Policy table municipality 6

Goals Light pollution policy	**Decision area 1** objectify complaints	**Decision area 2** solution	**Decision area 3** Transfer	**Decision area 3**
* nature * employment * welfare/health * safety	* duration * glare lighting * points of time * background value	* no health complaints - human - animal * safety * general * company * employees	* spacial zoning * light use * time * technique * entry limitation	*deepening * insulated * bulwark * guide lines * pole technique

Decision area 5 sport fields	**Decision area 6** hindered	**Decision area 7** relation national policy	**Decision area 8** financing
* user times * technique lighting * zoning in space	* subsidy * insulation city planning * insulation techniques * technique at the house	* waiting for * stimulation subsidy	* government * energy firms * light polluters * citizens concerned

6.5 Reflections on the intervention

In the previous chapter the outline for the oval-mapping intervention was presented. The way in which we intended to apply it differs in two ways from the oval-mapping technique as it is presented by its designers (cf. Eden and Akkerman, 1998a). The intervention was going to last approximately an hour and on the first day of BANS it was going be used to generate ideas for a process architecture and not focus solely on the content of the issue (cf. section 6.3.2).

While applying the technique some additional differences emerged. Table 6.3 presents an overview of the differences and similarities between the intended application of the oval-mapping technique and the way it was really applied during the runs. A distinction is made between three phases of activities i.e., starting up, structuring and enlarging, structuring and selection. In addition, some general characteristics of the technique are addressed.

The table does not show that in the sounding-board meeting participants did not start immediately working with the technique (the delays were between approximately 3-10 minutes). The policy adviser who formally chaired the meeting made a round robin and participants took the opportunity to exchange information on the issue. The facilitator interrupted this discussion to explain his/her presence once more an started with the group mapping exercise. According to the SODA-designers the facilitator should chair the meeting and immediately start with the oval-mapping technique. This difference in approach should not be a reason for great concern. Firstly, given the nature of the game/simulation, it is only understandable that participants have to find out what their roles and issues were. In practice, people in organizations exchange views and information constantly and do not enter a SODA-trajectory without preconceived knowledge. Moreover, sometimes, when participants are not familiar with each other, oval mapping also starts with a round robin in which participants can introduce themselves and their cause (cf. Eden and Ackermann, 1998a: 268).

In some instances participants did not write ovals simultaneously in the first phase (see Table 6.3). For instance, in one session in the coffee-shop case the participants slipped in a mode of consensus seeking, while contributing ideas for the process architecture. They deliberated on an idea and when they reached consensus the oval was stuck on the wall. They could not be persuaded to first write down their ovals simultaneously. A second difference is that on the second day the participants first wrote ovals for approximately 10 minutes and then, given turns by the facilitator, stuck them all on the wall. This nominal group approach was chosen because of the group size (14 participants). By offering more structure the facilitator aimed for more efficiency.

This approach of first writing ovals individually and then sticking them on the wall is not alien to the way oval mapping is used (cf. Eden and Ackermann, 1998a: 320).

In the second phase of the intervention, the emphasis is on structuring ovals into clusters and the gathering of new data (see Table 6.3). In this phase most activities the oval-mapping technique prescribes were introduced by the facilitators in the research with one exception. Towards the end of the intervention, only a few new ideas emerged and not a real second round of generating new ideas and structuring (3th phase) evolved. Eden and Ackermann (1998a) emphasize that idea generation and structuring form a cyclical process. After a first round of idea generation, the structuring of these ideas and discussions on the map's structure, a new round of idea generation is started. Consequently restructuring is necessary. It is on this point where our application of the technique diverges most strongly. In the last phase the difference between the oval-mapping technique as described by its designers and the way it was introduced in BANS increases. Firstly, few new ideas emerged. In addition the clusters for the process architecture on day one did not really require to be labelled. Secondly, no options were selected because option selection was going to be addressed later on in the process.

Summarizing, there are a number of differences between the oval-mapping technique as it was intended to be applied and the way it evolved in the runs. That facilitators had to diverge from the guidelines if circumstances require to do so, is not uncommon. The designers of SODA-trajectories and the oval-mapping technique opt for alternative scenarios not unlike the ones which emerged in the game/ simulation. One important aspect which characterizes the difference between the intended and applied technique is its cyclical nature. By and large, only one cycle of idea-generation and structuring was carried out and in this respect we have not exploited the technique in its full richness. Given the fact that in all instances only a few new ideas emerged towards the latter part of the intervention, it is questionable whether a more elaborated intervention would have produced a better result. This can be explained partially by the fact that participants could not rely fully on their 'theories in use' because of the relative novelty of the roles and issues.

Consequently, their theories in use were less rich. A longer intervention however, could have probably resulted in a full integration of orphan concepts, i.e., concept which are not linked to any of the other concepts, which emerged in some of the maps the groups produced. Considering the above arguments we will refer to the way we introduced the oval-mapping technique in the runs as a mapping technique based on oval mapping.

Table 6.3 Differences in intended application of oval mapping and actual applied oval mapping

Intended activities in the Oval Mapping trajectory (see Ch. 5)	**Actual activities in research**
1. Starting up	
- trigger-question which inspires idea generation	- on day 1 & 2: yes
- explain goal & procedure of the intervention	- on day 1 & 2: yes
- participants write ovals simultaneously	- on day 1: in most cases on day 2: yes
- once written, participants stick ovals simultaneously	- on day 1: approximately half of the cases on day 2: participants stick their ovals in turns
- reluctant participants are assisted: facilitator writes ovals	- on day 1: yes on day 2: no
- encourage talking participants to write new ideas on ovals	- on day 1 & 2: yes
- participants are encouraged to respond to each others statements	- on day 1 & 2: yes
- facilitator begins to cluster ovals	- on day 1: yes, but two facilitators start clustering immediately on day 2: yes

2. structuring and enlarging	
- discuss map with participants: ladder up and down the chains of concepts	- on day 1 & 2: yes
- confirm the structure of clusters: are ovals on the top indeed the most superordinate goals	- on day 1 & 2: yes
- draw in the links	- on day 1 & 2: yes, but there are orphans as well
- capture the new material: new ideas are elicited after discussing the map	- on day 1 & 2: no, only a few new ideas were added
3. Structuring and selection	
- new cards which have been added are structured	- not applicable given the few new ideas which emerged
- draw in links: intra/inter cluster + relationships	- yes but limited number of inter clustering due to limited number of clusters
- label emergent themes	- on day 1: not necessary for ideas for the process architecture on day 2: yes
- ovals placed on the side are discussed and integrated in the map	- on day 1 & 2: yes, but only partly, there are orphans left
- participants are asked to select a limited number of options/issues	- on day 1 & 2: no
General characteristics - eliciting 'theories in use' - cyclical process of idea elicitation and structuring - attention for both process and content - through participation develop common understanding - model forms an organizational memory	 - yes, but only to some extent - no - yes - depends on results: see chapters 7, 8 and 9 - depends on results: see chapters 7, 8 and 9

6.6 Conclusion

The building blocks of our quasi-experiment have been presented in this chapter.

First, the six municipalities were introduced which played the game/ simulation and formed the experimental and control group. An assessment of a number of characteristics showed that they differ in two respects. The control group consisted of larger municipalities and included a large number of civil servants working for a (strategic) policy development unit. The experimental group consisted of civil servants and heads of various departments. These differences may affect the groups' capacity for problem structuring.

Second, the main characteristics of the game/simulation BANS were introduced. BANS was designed as a training in participatory policy-making for experienced civil servants. It simulates a city in which fourteen participants engage in different roles. On the first day, they concentrate on designing a process for four policy issues and on the second day the content of one policy issue is addressed.

Thirdly, the account of one of the six municipalities playing BANS is given. It offers the reader insight in how the game/simulation actually develops and thus provides a stepping stone to the following chapters which will discuss the results of the quasi-experiment.

Finally, an analysis of the case of municipality 6 shows that in some respects the planned intervention differed from the factual application of the oval-mapping technique which is the reason we will refer to it as group mapping based on the oval-mapping technique.

7. Analysing policy issues: The results of the first day

7.1 Introduction

In the previous chapter, the policy-making process was described for one of the six municipalities which played BANS. For the first day, the development of one issue in particular - the coffee shop issue - was sketched. Here, we will first present and compare the results of this issue for all six municipalities. The six quality criteria defined to assess the quality of problem-structuring constitute the outline for the first section of this chapter. The aim is to offer the reader an insight into the way in which the criteria were operationalized and into the wealth of the data. We hypothesize that the mapping technique based on oval mapping assists problem-structuring in terms of the six quality criteria defined. The second part of this chapter presents an overview of the results concerning the other three issues of the first day of BANS. Appendix 12 presents a summary of the operationalization of the six quality criteria.

7.2 Analysing the coffee shop issue

7.2.1 Introduction

For each criterion, the observation data and the survey data of the coffee shop issue will be discussed in separate sections.[1] A distinction is made between the control group and the experimental group. The data were analysed and scored for two time intervals - the two sounding-board meetings - and for the process architectures which were drawn up at the end of the first day of BANS. The results are illustrated by observations.

1 Chapter 6 presents an introduction to the issue.

7.2.2 Aspect differentiation in the coffee shop issue

Aspect differentiation refers to the wealth of ideas a group of policy-makers has about a particular issue. Several ideas constitute an issue, and one idea can be subdivided into several aspects. The greater the diversity of aspects which are attributed to an issue, the higher the degree of aspect differentiation. Examples of aspects which feature in policy issues such as the coffee shop issue, are different stakeholders, different policy instruments such as meetings, conferences or regulations, and different goals, for instance, reduction in the use of hard drugs.

Observation results on aspect differentiation

In Table 7.1, the observation results are presented for the criterion 'aspect differentiation' in the coffee shop case. The table presents the number of different aspects for three categories (actors, process and content) for municipalities 1, 2 and 3, which constitute the control group, and municipalities 4, 5 and 6, which constitute the experimental group. Aspect differentiation is assessed during the two sounding-board meetings (SBM) and as regards the final product the various teams made, i.e., the process architecture (PA). Subtotals and totals of the categories of aspects are presented for the municipalities and groups respectively.

The number of different aspects emerging during the two sounding-board meetings and in the process architecture are derived from the observation protocols. Three categories of aspects are distinguished. These are :

1. 'actors': parties that somehow have a stake in the coffee shop issue, for instance, the coffee shop owners and the police;
2. 'content': all aspects which refer to substantive characteristics of the coffee shop issue such as location of the shop, type of drug, health risks;
3. 'process': all aspects which refer to possible actions which can be part of the policy-making process.

The way in which the observation protocols were analysed - aspects were derived from them and ordered into the three categories - is demonstrated by means of the following passage from a protocol of municipality 2:

> Welfare representative: 'I do not think that the analyses of the issue are very clear, and the ideas about deconcentration are rather weird.'
>
> Policy adviser: 'The present coffee shops cause inconvenience. Control is questionable.'
>
> Welfare representative: 'Agreements have been made with the coffee shop owners, but they do not observe them.'

Only one actor is mentioned in this passage, viz. the *coffee shop owners*. Content aspects are: *deconcentration* of coffee shops, *inconvenience* caused by coffee shops,

control (of issues), *agreements made with coffee shop owners*, *agreements not being observed*. One aspect refers to a possible action for the process architecture: *analyses* (of the issue).

For the first sounding-board meeting, the number of aspects in all three categories were added up (subtotals) for the six municipalities, and the totals for the two groups were calculated. Table 7.1 shows, for instance, that in the first sounding-board meeting municipality 6 scored the highest (81) number of aspects/ideas and that the control group had a slightly higher total score than the experimental group: 182 versus 176 aspects.

The totals for the second sounding-board meeting and for the process architectures were calculated somewhat differently. Only the categories 'actors' and 'process aspects' were included in the total. The reason for this is that the participants' main task for the first day was to develop a process architecture, i.e., to process ideas, and ideas about possible interlocutors for an issue. During the second meeting, the policy advisers discussed a first draft for the process architecture. One would thus expect attention to shift during the day towards process ideas (after both content and process ideas had been considered). In situations where the process architecture is rich in terms of content aspects but poor in actors and/or process aspects, aspect differentiation is, given the task the policy advisers had, rather limited. Few ideas were offered for the process architecture itself. For this reason, content aspects are not included in the subtotals for the second sounding-board meeting and process architecture.

In order to give an impression of the types of aspects the participants defined, the main clusters of aspects for municipality 1 for both sounding-board meetings and the process architecture are presented here. At the first sounding-board meeting, the participants discussed the following ideas: general steps for a process architecture, decentralization and relocation of coffee shops and possible consequences, the NIMBY feature and potentially relevant actors.

During the second sounding-board meeting, the emphasis was on an integral approach of the policy issue and various options (e.g., decentralization, quality circles, and protocols) were discussed. The process architecture (an example is presented in Chapter 6) was not finished and contained general rather than specified steps.

As Table 7.1 shows, in the first sounding-board meeting aspect differentiation is slightly higher for the control group. Their total score was 182 while the experimental group scored 176. The higher score can be attributed to the higher number of content aspects the municipalities defined. In the second sounding-board meeting and for the process architectures, aspect differentiation in the experimental group was higher than in the control group: 153 v. 112. The difference between the two

groups is greatest as regards the process architecture (101 aspects for the experimental group and 38 for the control group). The team from municipality 3 failed to produce a process architecture; this obviously influences the total score. However, the municipalities from the experimental group scored on average 33 aspects and those in the control group considerably less.

Table 7.1 Aspect differentiation in the coffee shop issue

		Control group			Experimental group		
	Municipality	*1*	*2*	*3*	*4*	*5*	*6*
1st SBM.	actors	14	15	11	16	16	15
	process	30	17	13	18	19	36
	content	25	24	33	14	12	30
	subtotal	69	56	57	48	47	81
	total (ranking)	182 (1)			176 (2)		
2nd SBM.	actors	14	11	11	11	10	18
	process	26	34	16	28	31	55
	content	*24*	*23*	*31*	*14*	*3*	*16*
	subtotal	40	45	27	39	41	73
	total (ranking)	112 (2)			153 (1)		
PA	actors	4	10	-	17	13	14
	process	9	15	-	20	14	23
	content	*3*	*4*	-	*8*	*4*	*3*
	subtotal	13	25	-	37	27	37
	total (ranking)	38 (2)			101 (1)		

Survey results on aspect differentiation

The way the participants themselves perceived the wealth of ideas (aspect differentiation) during the two sounding-board meetings and in the process architecture is shown in Table 7.2. Immediately after the meetings and the presentation of the process architecture the self-perception of aspect differentiation, and indeed the other 5 criteria, were measured with 1 item (the game/simulation offered little time

for a more elaborate questioning of the participants). The items consisted of a 5-point scale (1 = very unsatisfied, 5 = very satisfied).

Table 7.2 Aspect differentiation of the coffee shop issue according to the survey results (means and standard deviations)

	Control group			Experimental group		
Municipality	1	2	3	4	5	6
1st SBM. (n = 9)	3.7 *0.6*	3.3 *0.6*	3.0 *1.7*	2.7 *0.6*	4.0 *1.0*	3.7 *0.6*
2nd SBM. (n=9)	3.0 *1.0*	3.3 *0.6*	3.3 *1.5*	4.0 *1.0*	3.3 *1.2*	3.3 *0.6*
PA[2] (n=63)	3.3 *0.8*	4.1 *0.9*	/	4.0 *0.6*	3.1 *1.2*	3.9 *0.7*

When comparing the results of experimental and control groups there seem to be barely any difference between the groups. A repeated measures ANOVA for the two sounding-board meetings indicate no main effect for time ($F(1,18) = 0.00$, $p = 1.00$) or treatment ($F(1,18) = 0.32$, $p = 0.58$). Neither is there an interaction effect ($F(1,18) = 0.23$, $p = 0.6$). A MANOVA for the process architectures shows that there no difference between the groups ($F(1,63) = 0.12$, $p = 0.73$). (The fact that our groups are small may explain in part why the survey results show no statistically significant effect for the meetings.)

A comparison of the observation results with the survey results of the first sounding-board meeting shows that the self-reported results do not quite account for the slightly higher score of the control group. Nevertheless, both sets of data suggest that the difference between the two groups is rather small for the first meeting. The participants did observe the difference in richness the observations demonstrated for the second sounding-board meeting and process architecture. Apparently, the perceptions of the participants differed from those of the observers and the researcher. In analysing the results, more weight is attributed to the observation data since these provide a more in-depth overview of the developments during the sounding-board meeting. Furthermore, as relative outsiders working with standardized observation lists, the observers were able to obtain a more intersubjective perspective than the participants were able to. The researcher assessed the observation data and process architecture in detail. The assessment of aspect differentiation provides a clear

2 All participants taking part in the game/simulation judged the process architectures.

example of the attempt to achieve intersubjectivity. Counting aspects in both the observation transcripts and process architectures seems to provide data which are somewhat more reliable than the diverging survey results.

Summarizing, the intervention based on the oval-mapping technique did not enhance aspect differentiation in the first sounding-board meeting. On the contrary, the control group had a slightly more differentiated understanding of the issue than the experimental group. A possible explanation for this unexpected outcome may be the fact that the sounding-board meetings for municipalities 4 and 5 had problems settling into their new surroundings (the game/simulation) and at the same time dealing with method. Two of the three participants from municipality 4 expressed their feeling uncomfortable with the situation. The process in municipality 5 was hampered by the inexperience in policy-making of the young external participant (representing a local youth group), who represented the Welfare Foundation.

Although the control group initially scored somewhat higher, in the second sounding-board meeting and the process architecture the experimental group showed a more differentiated understanding of the issue according to the observation results. However, these observation results do not correspond with the participants' perceptions. They considered aspect differentiation to be the same.

7.2.3 Aspect integration in the coffee shop issue

Aspect integration refers to the degree to which various aspects are combined and linked into ideas and ideas into issues. The linking of aspects into strings of ideas constitutes meaning. The way in which aspects are linked (or not linked) into more tightly or loosely connected strings of ideas determines the level of order and transparency of the policy-makers' perception of the issue. When aspects are better integrated, there is more order and meaning in the group's perception of the issue.

Observation results on aspect integration

Tracing aspect integration in the observation protocols of the control group proved to be rather difficult. The analysis for the experimental group was easy: the oval-mapping technique requires that groups draw an explicit map on a wall chart. In the control group connections between aspects had to be derived from the observation protocols. Linking words like 'leads to' and 'is the same as', etc. were traced. Following this analysis, the oval maps of the protocols of the sessions of the control group were then drawn and compared with the maps of the experimental group.

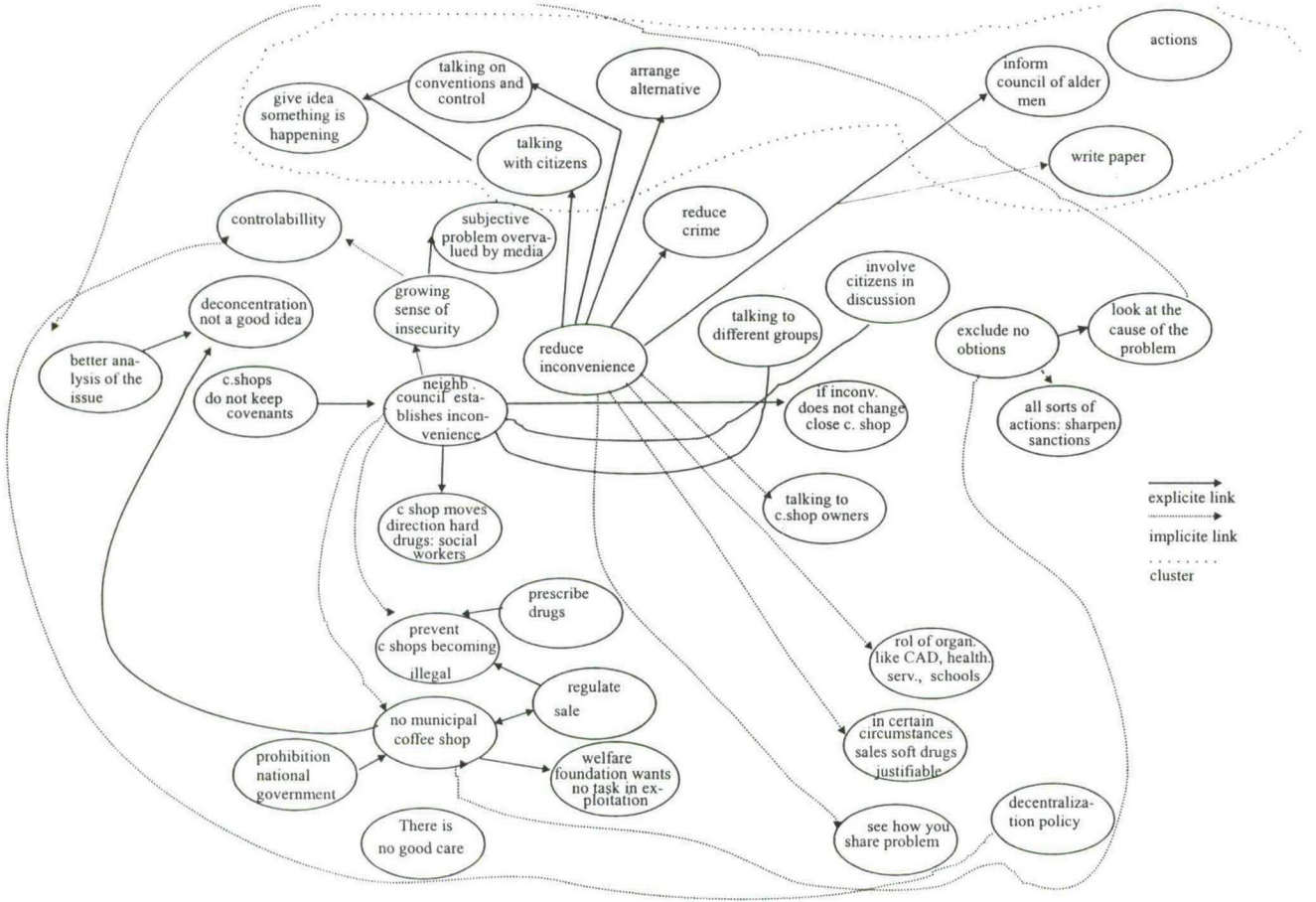

Figure 7.1 Cognitive map drawn by the researcher of the sounding board meeting of Municipality 2 on the coffee shop issue

In the first sounding-board meeting, oval maps were produced by the teams in the experimental group.[3] To be able to use the maps for comparison, the content of each map was carefully studied and the concepts that appeared in the maps were categorized. Heads (the most important goals) and clusters (strings of concepts[4] and aspects grouped around a central theme) were distinguished in all maps and used as indicators for aspect integration. The degree to which aspects are clustered in a meaningful way is an important indicator for integration. A meaningful cluster implies that a more unequivocal and profound understanding is produced by the linking of aspects. The relationship between clusters was assessed and determined by comparing the maps. In those instances where it was difficult to establish the nature of the connection between clusters, the observation protocols were also compared very closely with each other and with their corresponding maps. An example of a group map (of municipality 2) is given in Figure 7.1. It demonstrates that the group in municipality 2 linked various aspects they brought into the discussion. However, most aspects were linked consecutively - and thus not in strings - and there was little transparency as to how the various options (e.g., *decentralization, more police surveillance*) were related to each other or to the various actions. Hence, many links remained implicit. Few potential clusters and no heads can be detected. Aspect integration is thus low.

Table 7.3 Observation results for aspect integration in the coffee shop issue

	Control group			Experimental group		
Municipality	1	2	3	4	5	6
1st SBM.	+	-	±	+	+	+
2nd SBM.	±	+	+	++	+	++
PA	-	±	-	++	+	++

Legend: ++ = very high, + = high, ± = reasonable/somewhat, - = low

The level of aspect integration in the process architectures was assessed by establishing the extent to which the various steps of actions build upon previous steps. Furthermore, the degree to which, for each step, actors were linked to actions and corresponding aims is a second indicator for integration. For instance, the process

3 In instances where drawing the oval map was preceded by discussions during which aspects were introduced that were later not included in the map, these were incorporated in the analysis.

4 A concept may contain more than one aspect: for instance, combining a process aspect (information gathering) with a content aspect (on decentralization) and an actor (policy adviser).

architecture of municipality 6 that was presented in the previous chapter (see section 6.4.1) contains nine steps that form a sequence of steps. Each subsequent step built on the previous step. Furthermore, for all actions, actors and goals were specified. The level of aspect integration was therefore high (++).

In Table 7.3, the results for all six municipalities are presented. In order to avoid a type-I error (concluding wrongly that there is an effect of method), it was decided that *at least two* out of three municipalities in the experimental group needed to score higher than those of the control group. Table 7.3 shows that in the first sounding-board meeting two municipalities from the experimental group scored higher than two from the control group (+, + versus -, ±). This is also the case for the second sounding-board meeting (++, ++ versus ±, +). In the case of the process architectures, *all three* municipalities in the experimental group scored higher.

Survey results on aspect integration

In Table 7.4 the results are presented of the way in which the participants judged the degree of aspect integration. These results were assessed in the same way as the survey scores on aspect differentiation.

The results are diverse across time both for the various municipalities as well as within the two groups. For the first sounding-board meeting, there seems to be no overall difference between the experimental (M 4, 5, 6) and control groups (M 1, 2, 3). In the second sounding-board meeting the control group is more positive about the integration of ideas in their meetings than the experimental group. A repeated measures ANOVA for the two sounding-board meetings shows that there are no main effects for time or treatment ($F(1,18) = 0.04$, $p = 0.85$; $F(1,18) = 0.03$, $p = 0.87$) and no interaction effect ($F(1,18) = 0.34$, $p = 0.85$). For the process architectures, the experimental groups seemed more positive about aspect integration. However, a MANOVA for the process architectures ($F(1,63) = 0.02$, $p = 0.90$) showed that there is no statistically significant difference between the two groups.

Again, comparison of the observations and survey results indicates that the latter do not support our observation findings. Only 1/5 of the survey scores support the observation outcome. In 2/5 of the measurements the observation results are more positive and in another 2/5 of the measurements the survey results are more positive than the observation results.

In conclusion, the observation results suggest a clear positive effect of the mapping technique on the degree of aspect integration for both sounding-board meetings and the process architecture, albeit that the survey results do not support the observations.

Table 7.4 Aspect integration on the coffee shop issue according to survey results (means, standard deviation)

	Control group			Experimental group		
Municipality	1	2	3	4	5	6
1th SBM (n = 18)	3.0 *1.0*	3.7 *1.2*	3.7 *1.2*	2.7 *1.2*	3.3 *0.6*	4.3 *0.6*
2th SBM (n = 18)	3.7 *0.6*	3.7 *0.6*	3.0 *1.0*	3.0 *1.0*	3.7 *0.6*	3.3 *1.2*
PA (n = 69)	2.9 *0.8*	4.1 *0.7*	-	3.6 *0.7*	3.3 *1.2*	3.9 *0.8*

7.2.4 Balancing interests in the coffee shop issue

The third criterion which we consider to be an important indicator for the quality of problem structuring is 'balancing interests'. The various interests which are involved in a policy-making process deserve the consideration of the policy network.[5] 'Balancing interests' refers to the degree to which policy-makers weigh the interests of the various stakeholders involved in the issue.

Observation results on balancing interests

With the aid of the observation protocol, we analysed, for every municipality the degree down, to which interests were balanced during the sounding-board meetings. The observers noted for all parties taking part in the sessions, whether they paid much, not so much or little attention to their own or to common interests, and whether certain interests dominated the meeting. Furthermore, the protocols were screened for statements regarding interests.

The following illustrates the assessment process using what happened in municipality 2. During the first sounding-board meeting in municipality 2, the representative of the Welfare Foundation pointed out that they should consider what other organizations could play a role in the process, and mentioned schools and the CAD (Centre for Alcohol and Drugs), a local health service. The policy adviser replied that he wanted to involve citizens in the discussion on the inconvenience the coffee shop causes. These parties are thus pointed out as having an interest in the issue. The statements indicate a willingness to consider other interests apart from their own

5 Here, the policy network was the sounding board for public affairs. Not the individual organization's way of balancing interests is our concern but that of the inter-organizational network.

interests. Analyses of the protocols and observation questionnaires of this first sounding-board meeting of municipality 2 showed that single interests did not dominate the discussion. The policy adviser tried to emphasize the common interests. The mayor and representative of the Welfare Foundation both advocated common interests and personal interests to some extent. Furthermore, various actors were defined as relevant for the policy-making process. These findings for the first sounding-board meeting were compared with the results from the other five municipalities, and subsequently scored as positive. Interests were thus well balanced by the team from municipality 2.

In the second sounding-board meeting of municipality 2, the policy adviser advocated a broadly based working group. Individual interests were more present than in the first meeting, but common interests dominated. The mayor suggested to talk to the various parties involved on a bilateral basis, to get a clear perspective of the various perceptions of the issue. Again, these findings - when compared with the results of the other five municipalities - accounted for a positive score for the way in which interests were balanced in this second session.

Table 7.5 Observation results on the balancing of interests in the coffee shop issue

	Control group			Experimental group		
Municipality	1	2	3	4	5	6
1st SBM	+	+	+	+	+	+
2nd SBM	+	+	+	+	+	+
PA	-	+	-	+	+	+

Legend: ++ = very well, + = well, ± = reasonable, - = poor

Balancing interests in the process architecture was assessed by counting the number of parties mentioned and considering the time at which they were to become involved in policy-making according to the process architecture presented.[6] For example, in the process architecture of municipality 2, a working group was planned, consisting of the municipality, the Welfare Foundation, and a neighbourhood council. They were to make proposals and confer with the coffee shop owners and citi-

6 There is an overlap between the way in which 'balancing interests' and 'aspect differentiation' are operationalized and assessed concerning the process architecture. Both share a subset which is part of larger sets of items. There is, therefore, a certain level of contamination, but both concern dependent variables instead of independent variables and hence the reliability of our criteria is not undermined.

zens. Involving these groups implies that various interests are thus considered early in the process. Hence, the way in which interests are balanced in the process architecture is scored positively.

The scores for municipality 2 and the other municipalities are summarized in Table 7.5. There is little difference between the control and experimental groups for the sounding-board meetings. The oval-mapping technique does not seem to differentiate. Only for the process architecture, there is a clear difference in favour of the experimental group (M 4, 5, 6), two municipalities of which score evidently higher than two municipalities in the control group (M 1, 2, 3).

Survey results on balancing interests

Below, the results of the surveys concerning 'balancing interests' are presented. Participants were asked to what extent they considered the various interests to be well balanced in the meetings (on a 5-point scale).

Overall, the participants in the experimental group appeared to be slightly more positive about the outcome of the first sounding-board meeting and the process architectures than those of the control group. The results for the second sounding-board meeting suggest the opposite. Differences are small. A repeated measures ANOVA for the two sounding-board meetings shows that there is no main effect for time or for treatment ($F(1,18) = 0.28$, $p = 0.61$; $F(1, 18) = 0.00$, $p = 1.00$). Neither is there an interaction effect ($F(1,18) = 1.10$, $p = 0.31$). For the process architectures too, there is little difference between the experimental and control groups: a MANOVA shows that there is no significant difference ($F(1,63) = 0.35$, $p = 0.55$).

Table 7.6 Balancing interests in the coffee shop issue according to survey results (means, standard deviations)

	Control group			Experimental group		
Municipality	1	2	3	4	5	6
1st SBM (n = 18)	3.0 *1.0*	3.7 *0.6*	3.3 *1.5*	3.3 *1.2*	3.7 *0.6*	3.7 *0.6*
2nd SBM (n = 18)	3.3 *0.6*	4.0 *1.0*	3.7 *0.6*	3.7 *0.6*	3.7 *0.6*	3.0 *1.0*
PA (n =70)	2.7 *1.3*	3.9 *0.6*	-	3.6 *0.9*	2.9 *1.0*	3.4 *0.9*

Both the observation and survey results for the two sounding-board meetings confirm that for both meetings there is little difference between the control and experi-

mental groups. The survey results do not confirm the difference the observation data show between the groups in the way in which process architectures balanced interests.

Summarizing, the intervention based on the oval-mapping technique seems to contribute little to the way in which interests are balanced in the meetings. One explanation for this outcome might be that the game/simulation was designed and presented to the municipalities as a training technique in interactive policy-making. Participants in both conditions were, therefore, probably already inclined to pay attention to other interests related to the issue. This may have made it more difficult to trace a possible effect of the method. Nevertheless, for the process architecture the observations do suggest a modestly positive effect.

7.2.5 Participation in the coffee shop issue

Participation refers to the level of active involvement of the group of policy actors in the policy-making process. This involvement may have different forms: people can contribute in terms of ideas, investing energy and/or offering financial support. Methods and techniques such as the oval-mapping technique aim to increase the active involvement of stakeholders in problem structuring. A greater degree of participation contributes to a possibly more complete framing of the issue (more ideas may be generated as a result of greater involvement) and a wider support for the policy.

Observation results on participation

Participation was assessed in a similar way as balancing interests. The observers noted how talkative and dominant the various participants were and what their attitude (e.g., active, fighting, listening, etc.) was during the sessions. The degree to which participants asked one another for information was another indicator for the level of involvement in the meeting. Furthermore, all statements suggesting some form of contribution, positive or negative, were traced in the observation protocols of the meetings. Together with the observation questionnaire, this provided the data for assessing the degree of participation. The data for all six municipalities were compared and then they were scored.

To illustrate the way in which participation is scored for the sounding-board meetings we again discuss the results for municipality 2.

In the first sounding-board meeting, the policy adviser proposed to make a draft process architecture. He wanted to talk to citizens about the coffee shop and suggested to organize a number of meetings with various groups. The Welfare Foundation offered to talk to the citizens and pointed out that the costs of a societal problem such as drug use should be borne by all actors and not just a particular

group. Participants asked each other for information. They adopted an active and constructive stance during this meeting. Participation was thus high. In the second meeting, the participants actively discussed the question which groups should become involved. The mayor slightly dominated the board, but the others talked more than during the first meeting. The policy adviser wanted a broadly composed team and suggested that the mayor himself should lead the discussions. He promoted the active involvement of a number of parties. Again, participation was qualified as positive.

Table 7.7 Observation results on participation in the coffee shop issue

	Control group			Experimental group		
Municipality	1	2	3	4	5	6
1st SBM	+	+	+	±	+	+
2nd SBM	+	+	+	+	+	+
PA	±	+	-	+	+	+

Legend: ++ = very high, + = high, ± = reasonable/somewhat, - = low

The way in which the process architecture included future participation was assessed for the various steps of action the teams defined. Per step, the level of involvement of organizations/actors was established. For example, inviting policy actors to provide information was valued as a slighter degree of participation than involving policy actors in taking decisions. In municipality 2, for instance, the process architecture arranged for various parties to take part in a task force, which was to formulate proposals and discuss these proposals with other actors in order to improve control and reduce the sense of insecurity. In comparison with some of the other municipalities, this indicates a reasonably high degree of participation (see Table 7.7).

In Table 7.7, all observation results are presented. The observations show few differences between the experimental and control groups as regards the degree of participation in both sounding-board meetings. Only with regard to the process architecture, the experimental group seems to be doing better since two out of three municipalities in the control group have lower scores (±, -) than the municipalities in the experimental group (+, +).

Survey results on participation

Table 7.8 demonstrates how the participants themselves valued their own contribution to the meeting in terms of money, energy and/or time to the meeting and, in the case of the process architecture, all participants expressed whether they were willing to support the architecture and participate in the policy-making process.

In the first sounding-board meeting the municipalities from the experimental group seemed - according to their own perception - more actively involved in the process than those in the control group. The results for the second sounding-board meeting and the process architecture do not seem to differ between the groups. A repeated measures ANOVA for the two sounding-board meetings show no main effects for time ($F(1,18) = 2.72$, $p = 0.12$) or for treatment ($F(1,18) = 0.231$, $p = 0.64$). There is no interaction effect either ($F(1,18) = 0.30$, $p = 0.59$). A MANOVA for the process architecture showed no statistically significant difference between the two groups ($F(1,63) = 0.65$, $p = 0.43$).

Table 7.8 Participation in the coffee shop issue according to survey results (means, standard deviations)

	Control group			Experimental group		
Municipality	1	2	3	4	5	6
1st SBM (n = 18)	3.3 *0.6*	3.7 *0.6*	3.3 *2.1*	3.7 *0.6*	3.7 *1.5*	4.0 *1.0*
2nd SBM (n = 18)	3.7 *1.2*	4.3 *1.2*	3.7 *1.5*	4.3 *0.6*	4.0 *1.0*	3.0 *1.0*
PA (n = 69)	2.9 *0.8*	3.7 *1.0*	-	3.0 *1.2*	2.9 *1.6*	3.6 *1.3*

Both the observation and survey results for the sounding-board meetings suggest that the intervention based on the oval-mapping technique did not increase the level of participation in the sounding-board meetings. However, the process architecture of the experimental group scored higher on this criterion. Again it is pointed out here, that the context in which group mapping based on the oval-mapping technique was assessed, was possibly biased towards a participatory style of policy-making, as explained above. As a consequence, there was a strong focus in the game/simulation on actively involving possibly relevant organizations in the process. It may therefore, have become difficult to trace an additional effect of the intervention based on the oval-mapping technique on the level of participation.

7.2.6 Communication in the coffee shop issue

Our criterion 'communication' refers to the level of cognitive and mutual understanding in participants.

Observation results on communication

Communication in the sounding-board meetings was assessed by the following questions in the observation questionnaire: the degree to which each participant listened (well, reasonably, not), the participant's attitude, the atmosphere characterizing the meeting and whether participants understood one another. Furthermore, statements in the observation protocols which referred to the atmosphere of the meeting, cognitive and mutual understanding were used. A comparison of these items for the six municipalities resulted in a score for communication.

Again, to illustrate our operationalization and scoring of communication we present the findings for municipality 2.

The atmosphere of the first sounding-board meeting can be typified as open, observant and constructive. The participants understood each other well and listened reasonably well. The protocol contains no statements referring to misunderstandings, confusion or (experienced) disrespect or lack of trust. On the contrary, it indicates that participants were seriously interested in each other's positions and experiences. Hence, the first meeting of municipality 2 can be valued as 'involved' and 'open': participants listened reasonably well to each other and they had a reasonably good cognitive and mutual understanding. Communication was qualified as 'good' as Table 7.9 illustrates.

Table 7.9 Communication in the coffee shop issue according to observation results

	Control group			Experimental group		
Municipality	1	2	3	4	5	6
1st SBM	+	+	+	±	+	+
2nd SBM	+	+	+	+	+	+
PA	±	±	-	±	+	±

Legend: ++ = very high, + = high, ± = reasonable/somewhat, - = low

Communication as arranged in the process architecture was assessed by checking step by step whether explicit attention was paid to the organization of communication or to instruments such as meetings directed at providing information, realizing mutual understanding or other activities which functioned to communicate a mes-

sage to the groups involved. These results for the various municipalities were again compared and a final score was given. For municipality 2, communication was reasonable (±). In its process architecture, meetings were mentioned. One of the goals of these meetings was to increase public support; i.e., the municipality was to communicate an idea to various participants. However, communication was not explicitly referred to.

Table 7.9 presents an overview of the observation results for the criterion 'communication'. Again, for the two sounding-board meetings there is little difference between the control and experimental groups. Communication was rather poorly organized in most of the process architectures. One municipality of the experimental group organized future communication in its process architecture rather well. Given the fact that at least two of the three municipalities needed to score higher, the difference between the two groups is overall too small to suggest an effect of the intervention based on the oval-mapping technique.

Survey results on communication

Table 7.10 presents the survey results for the criterion communication. It shows the way in which the participants perceived attention paid to one another and whether there was mutual understanding in the group. The item concerning the process architecture enquired whether the architecture would enhance mutual understanding in the policy network.

The results show that there is almost unanimity among the experimental and control groups about the level of communication in the first and second sounding-board meetings.

Table 7.10 Communication in the coffee shop issue according to survey results (means and stan dard deviations)

	Control group			Experimental group		
Municipality	1	2	3	4	5	6
1st SBM (n = 18)	4.7 *0.6*	4.0 *0.0*	4.0 *1.0*	4.3 *0.6*	4.3 *0.6*	4.3 *0.6*
2nd SBM. (n= 18)	3.7 *0.6*	3.7 *0.6*	4.0 *1.0*	4.0 *0.0*	3.8 *0.8*	4.0 *1.0*
PA (n = 69)	2.9 *1.1*	4.1 *0.7*	-	3.6 *0.8*	3.0 *1.2*	3.3 *0.9*

A repeated measures ANOVA for the two sounding-board meetings shows that there is a trend towards a main effect of time ($F(1,18) = 7.03$, $p = 0.017$) but no effect for treatment ($F(1,18) = 0.31$, $p = 0.59$). Nor is there an interaction effect ($F(1,18) = 0.03$, $p = 0.86$). A MANOVA for the way in which future communication was arranged in the process architectures shows no statistically significant difference between the two groups ($F(1,63) = 2.29$, $p = 0.14$).

The participants' perceptions of communication in the two sounding-board meetings are in accordance with our observations. This is not the case for our findings on the process architecture. The participants of municipalities 2 and 4 were much more positive and the participants of municipality 5 were more negative about future communication arrangements than one would expect them to be, considering our observation results.

In conclusion group mapping based on the oval-mapping technique seems to have had limited effects. For the sounding-board meetings, the experimental and control groups did not differ. Only as regards the process architecture did the experimental group pay somewhat more attention to communication in future policies. The bias of the game/simulation pointed out in previous sections may be an explanation for the fact that there is little difference between the groups. The constructive attitude of participants which characterized most meetings might well have been the product of the game/simulation and its function as a training.

7.2.7 Process management in the coffee shop issue

Process management is our sixth and last criterion. It refers to the way in which the debate is organized and structured by one (or possibly more) of the participants in a policy-making process. A well-managed process involves offering participants opportunities to contribute, challenging them to define and/or pursue goals, and check whether there is support from the rank and file of the various organizations involved.

Observation results on process management

Process management was assessed in the two sounding-board meetings on the basis of items in the observation questionnaire and an analysis of the observation protocol. The observants noted for each participant whether he or she steered a lot, somewhat or a little, who was the formal and who the informal leader and whether the meeting was well structured, reasonably structured or unstructured. In addition, the observation protocols were analysed and checked for statements directed at influencing group processes. Indicators for good process management are, for example, giving turns to the participants; summarizing what has been said; asking participants to

inform their organizations, and make sure they are supported by those whom they represent.[7]

Once more, the experiences of municipality 2 will illustrate our operationalization. In the first sounding-board meeting, the policy adviser repeatedly emphasized that no solutions should be excluded, and he tried to encourage the participants to avoid the premature rejection of viable options. He urged the various parties to clarify their positions and suggested it would be beneficial if the mayor were to attend the meeting with the inhabitants, suggesting that his presence would communicate to citizens that they were being taken seriously. Also, he gave comments on suggestions the others made. He concluded with the suggestion that he would make a draft-proposal for the process architecture. Comparing these main elements with those of the other municipalities resulted in an end score which is presented in de table below.

Process management as organized in the process architectures was also measured. Step-by-step these were analysed to find out whether attention was paid to informing relevant actors, taking care of boundary management, mentioning who would be responsible for what action, and whether the coordination of these actions was taken care of. For example, the process architecture of municipality 2 scored well as regards process management because it provided for attaining activities in the management team. This team was also responsible for attuning long and short-term problems and developments. Furthermore, a task force would be created to play a central role in process management and the formulation of proposals. Finally, the promotion of support was an important point of attention.

A repeated measures ANOVA for the two sounding-board meetings shows that there is a trend towards a main effect of time ($F(1,18) = 7.03$, $p = 0.017$) but no effect for treatment ($F(1,18) = 0.31$, $p = 0.59$). Nor is there an interaction effect.

Once more, the observations suggest little effect of the intervention based on the oval-mapping technique on the way in which the process was managed during the sounding-board meetings. There is a small difference between the control and experimental groups. However, there is a positive score for the process architecture of the experimental group.

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7 Gray (1991) emphasizes the importance of boundary management. Organizations involved in multi-party negotiations need to keep in mind their organization's goal. Simultaneously, they need to inform their own organization about the negotiation process and avoid losing the support and commitment of those whom they represent.

Table 7.11 Observation results on process management in the coffee shop case

	Control group			Experimental group		
Municipality	1	2	3	4	5	6
1st SBM	+	+	±	+	+	+
2nd SBM	±	+	±	±	+	+
PA	-	+	-	+	+	+

Legend: ++ = very high, + = high, ± = reasonable/somewhat, - = low

Survey results on process management in the coffee shop issue

The survey results on process management are presented in Table 7.12, below and express the participants' perception of the way in which the process was managed in the sounding-board meeting or in the process architecture. In the first sounding-board meeting, the control group seemed more satisfied with the way in which the process was managed than the experimental group. This was, to some extent, also true for the second sounding-board meeting. The scores for the process architectures are similar. However, a repeated measures ANOVA for the two sounding-board meetings shows that there are no main effects for time or treatment ($F(1,18) = 0.07$, $p = 0.80$; $F(1,18) = 0.50$, $p = 0.49$). There is no interaction effect either ($F(1,18) = 0.07$, $p = 0.80$).

Table 7.12 Process management in the coffee shop issue according to survey results (means and standard deviations)

	Control group			Experimental group		
Municipality	1	2	3	4	5	6
1st SBM (n = 18)	3.0 *1.0*	4.3 *0.6*	3.0 *1.7*	2.3 *0.6*	3.7 *0.6*	3.3 *0.6*
2nd SBM (n= 18)	3.0 *1.0*	4.0 *0.0*	3.3 *1.5*	3.7 *0.6*	3.0 *0.0*	3.0 *1.0*
PA (n = 69)	3.1 *1.0*	3.9 *0.7*	-	3.7 *0.8*	3.0 *1.4*	3.4 *1.0*

A MANOVA for the results on how the process architectures arranged future process management shows no difference between the two groups ($F(1,63) = 1.16$, $p = 0.29$).

Comparison of the observation and survey results suggests that the latter support the findings for the two sounding-board meetings though not for the process architectures.

7.2.8 Summarizing the results for the coffee shop issue

Above, the results for one of the four issues of the first day of the game/simulation have been presented. Table 7.13 presents a general summary of the observation results for all six criteria.

Our observations show an unexpected higher score for aspect differentiation by the control group in the first sounding-board meeting. However, the experimental group succeeded in sustaining a more differentiated view of the issue in process terms during the second meeting and in the process architecture. For aspect integration, the experimental group performed better in all three instances.

Table 7.13 Summary observation results Coffee shop issue

	crit. 1	crit. 2	crit. 3	crit. 4	crit. 5	crit. 6
1st SBM	c	2/3	0	-1	-1/3	1/3
2nd SBM	e	2/3	0	0	0	1/3
PA	e	3/3	2/3	2/3	1/3	2/3

Legend: crit. 1 = aspect differentiation; crit. 2 = aspect integration; crit. 3 = balancing interests; crit. 4 = participation; crit. 5 = communication; crit. 6 = process management; c = the control group scores higher; e = experimental group scores higher[8]; 0 = there is no difference between the two groups; 1/2, 2/2, 3/3 = one, two or three of the in total three municipalities of the experimental group score higher than those of the control group; -1/3, -2/3 and -3/3 = one, two or three municipalities of the in total three municipalities in the control group score higher than those of the experimental group.

The two groups did not differ in the way they balanced interests, participated, communicated and managed their processes in both sounding-board meetings. However, the process architectures of the experimental group scored somewhat higher on balancing interests, participation and process management. This outcome suggests a possible delayed effect of the intervention based on the oval-mapping technique. The technique does not have an effect in the short term (1st SBM) nor in the second

8 The scores (c/e) in this table are only given for aspect differentiation which was assessed at the level of the two groups but not specified further for the municipalities within those groups.

meeting, but there appears to be an effect on the policy product (PA), which results from the policy-making process.

In Table 7.14 a summary of the survey results of the six criteria is presented.

Table 7.14 Summary survey results of the coffee shop issue

	crit. 1	crit. 2	crit. 3	crit. 4	crit. 5	crit. 6
1st & 2nd SBM	0	0	0	0	0	0
PA	0	0	0	0	0	0

Legend: 0 = no statistical difference between the two groups for criteria x on measuring point, SBM 1, SBM 2 or for the PA; c = control group scores higher; e = experimental group scores higher; (c) there is a trend for the control group; (e) there is a trend for the experimental group.

Following the participants' perception, the experimental group does value in some instances some of the criteria somewhat higher. However, as Table 7.14 demonstrates, none of the differences are statistically significant. Thus only in some instances do the participants' perceptions correspond with the observation findings.

7.3 Summarizing the results of the other three issues

The coffee shop issue is one of the four issues which the participants have to deal with on the first day of BANS. In this section, a summary of the results of the other three issues (the housing issue, light pollution issue, and the new motorway the A206 will be presented. A more elaborate account of the results of the discussions on these issues is provided in Appendix 1.

7.3.1 The housing issue

Table 7.15 presents the observation outcomes of our quasi-experiment with group mapping based on the oval-mapping technique for the housing issue. The observation outcomes suggest - for the first sounding-board meeting (this is the short-term result[9]) - that, surprisingly, the control group initially scores higher on aspect differentiation than the experimental group. Only for aspect integration does the experimental group score higher than the control group in the short term.

9 A short-term result refers to a difference between the two groups in the first meeting in which the intervention was introduced. A long-term effect indicates that the groups differ later on in the process, either in a second meeting or in the outcome of the process, i.e. the policy product.

Table 7.15 Summary observation results for the housing issue

	crit. 1	crit. 2	crit. 3	crit. 4	crit. 5	crit. 6
1st SBM	c	2/3	0	0	1/3	-1/3
2nd SBM	e	3/3	1/3	1/3	1/3	2/3
PA	e	3/3	2/3	2/3	2/3	1/3

Legend: see Table 7.13

For the second sounding-board meeting, the experimental group scores higher on aspect differentiation, aspect integration and process management. For the other three criteria the observations indicate a trend. Finally, the experimental group scores higher as regards the process architectures on all criteria except process management. Here, only one municipality of the experimental group scored higher.

Table 7.16 Survey results for the housing issue

	crit. 1	crit. 2	crit. 3	crit. 4	crit. 5	crit. 6
1st & 2nd SBM	0	0	0	0	(e)	0
PA	e	e	(e)	0	0	(e)

Legend: see Table 7.14.

In Table 7.16, the participants' own assessment of the six criteria are presented. These results only partly support the observation outcomes. One should take into account that with a repeated measures MANOVA the effect is calculated for the results of the two sounding boards combined. No separate outcomes for the meetings are given. The survey results suggest that there is a trend for communication - but no significant difference - favouring the experimental group.

Furthermore, the experimental group's process architectures scored higher on aspect differentiation and integration. There are trends that the experimental group scored higher on balancing interests and process management. Summarizing, both outcomes indicate a long-term effect for all four criteria. Given the survey results, this effect is less strong for participation and communication.

7.3.2 The light pollution issue

The outcomes for the light pollution issue show a somewhat different picture. Tables 7.17 and 7.18 present an overview of the observation and survey results of this issue, respectively.

In the first sounding-board meeting, the control group scored higher on participation and communication than the experimental group. For the other criteria, the two groups did not differ. For balancing interests, only one municipality of the experimental group scored higher.

In the second sounding-board meeting, the two groups differed significantly only for the criterion aspect differentiation: the experimental group scored (slightly) higher than the control group.

For the process architecture, it is the control group which scored higher on aspect differentiation and process management. Although the control group scored somewhat higher on participation and communication, it is not a significant difference as only one of municipalities scored higher.

Table 7.17 Summary observation results for the light pollution issue

	crit. 1	crit. 2	crit. 3	crit. 4	crit. 5	crit. 6
1st SBM	0	0	1/3	-2/3	-3/3	0
2nd SBM	e	-1/3	0	0	-1/3	-1/3
PA	c	0	0	-1/3	-1/3	-2/3

Legend: see Table 7.13

Table 7.18 shows the survey results for the light pollution issue

Table 7.18 Summary survey results for the light pollution issue

	crit. 1	crit. 2	crit. 3	crit. 4	crit. 5	crit. 6
1st & 2nd SBM	0	0	0	0	0	0
PA	c	c	c	0	(c)	(c)

Legend: see Table 7.14

The survey results indicate that the groups did not differ for all six criteria during the sounding-board meetings. The process architectures of the control group scored

higher on aspect differentiation, aspect integration and balancing interests, and there are trends that the control group scored higher on communication and process management.

Summarizing, the observation and survey results are only partly in accordance. The observation data suggest that it is the control group which scored higher on participation and communication in the short term. With regard to the process architectures, the control group scored higher on aspect differentiation and process management. The survey outcomes support the latter but indicate in addition a positive outcome for the control group for aspect integration and balancing interests and a trend for communication.

7.3.3 The A206 issue

The fourth issue is the A206, a new motorway which is to be constructed west of Beneveld. The observation and survey results for this issue are presented in Tables 7.19 and 7.20, respectively.

Table 7.19 shows that it is again the control group which scored higher on aspect differentiation in the first sounding-board meeting. The data also suggest that the control group scored somewhat - but not significantly - higher on participation, communication and process management.

Table 7.19 Summary observation results for the A206

	crit. 1	crit. 2	crit. 3	crit. 4	crit. 5	crit. 6
1st SBM	c	0	0	-1/3	-1/3	-1/3
2nd SBM	e	2/3	1/3	0	1/3	1/3
PA	e	2/3	1 /3	2/3	-1/3	2/3

Legend: see Table 7.14

In the second sounding-board meeting, it is the experimental group which scored higher on aspect differentiation and aspect integration and somewhat (but not significantly) higher on balancing interests, communication and process management. Again, the groups differ most strongly as regards the process architectures. The process architectures of the experimental group scored higher on aspect differentiation, aspect integration, participation, and process management.

In Table 7.20 the participants' perception of the six criteria are presented. It shows that following the participants' perception, the intervention appeared to have

had no effect. The two groups do not differ in their appreciation of the six criteria for the two sounding-board meetings and the process architectures.

Table 7.20 Survey results for the A206 issue

	crit. 1	crit.2	crit. 3	crit. 4	crit. 5	crit. 6
1st & 2nd SBM	0	0	0	0	0	0
PA	0	0	0	0	0	0

Legend: 0 = no difference between the groups

The survey results - see Table 7.20 - for the A206 issue only partly support the observation outcomes. Overall, group mapping based on the oval-mapping technique appears to have had limited effect. Following the observation results, it is the control group that scores higher on aspect differentiation in the short-term time. But in the long term the experimental group appeared to have a more differentiated understanding of the issue. They were better at integrating aspects, and ensured a somewhat better participation and process management.

7.4 Conclusion and discussion

In this chapter, the outcomes for the coffee shop issue were analysed and discussed extensively. Subsequently, a summary was given of the results for the other three issues which featured on the first day of the game/simulation. When comparing the results for the four issues, the following pattern emerges. First, contrary to our expectations, group mapping based on the oval-mapping technique appears to have had a rather modest overall effect. Second, there is little immediate effect. The experimental group does not score higher on the six criteria for problem structuring during the first sounding-board meeting. In fact, in three of the four issues the technique seems to be counterproductive to increasing aspect differentiation in the first sounding-board meeting. It is the control group which initially scored higher on this criterion. However, there is some evidence that there is a positive immediate effect on aspect integration. Third, there appears to be a positive long-term effect on the process architecture for the criteria aspect differentiation and aspect integration, and a tentative and modest effect for balancing interests, participation and process management.
There are some differences between the issues. The effect of the oval-mapping technique is somewhat greater in the coffee shop - and housing issue in comparison

with the A206 issue. The most striking difference concerns the light pollution issue: here, it is the control group which scores unexpectedly higher in a number of instances.

This difference in outcomes between the four issues cannot be explained by a difference in experience of the facilitator. The facilitator engaged in the A206 issue was very skilled in comparison with the others, but the results for this case were less convincing than for the coffee shop and housing issue. To what extent can issue characteristics play a role? Following the participants' perception, the four issues were to be - cognitively and socio-politically - qualified as neither simple nor very complex. The issues were considered to be normatively rather simple. The participants viewed the housing and coffee shop issues cognitively and socio-politically as somewhat less complex than the other two issues. It is important to note that the experimental group did not experience less complexity as a result of the intervention.

The fact that the housing issue is viewed as less complex can be explained by its focus on choosing between alternative options. The coffee shop issue, on the other hand, has all the characteristics of a NIMBY issue, and one would expect it to be socio-politically and normatively complex. However, the sounding-board meetings on the issue were marked by a cooperative style. This can be explained by the fact that a limited number of stakeholders was represented. The issue's NIMBY characteristics did thus not really emerge. This consensus- seeking style of policy-making marked by and large all four issues. However, in the light pollution and A206 issues interests collided more. The light pollution issue is a new issue which requires technical expertise. It is cognitively more complex than the other three issues. Both the light pollution issue and the A206 issue are socio-politically complex in the way the issues were offered to the players in the game/simulation.[10]

In conclusion, the effects the intervention based on the oval-mapping technique had on problem structuring in the four cases are rather limited. There is some difference between the results for the issues which may be contributed in part to their complexity: the latter is a tentative conclusion. In Chapter 9, the results for both days will be further analysed.

Finally, the participants were also asked about their experiences with the intervention.[11] The experimental group agreed with the proposition that group mapping serves the policy-making process ($x = 3.7$[12]) and increases insight into the issue ($x = 3.5$). The participants are indecisive about the technique's contribution to

10 A distinction can be made between the complexity of the issue as it was designed for the game/simulation and the complexity the players with their characteristics added to BANS.

11 In appendix 10 an overview is presented of the participants' appreciation of the various policy instruments.

12 The item is measured on a five-point scale: 1= fully disagree, 5 = fully agree

increasing mutual understanding and reducing conflict between the various interests (x = 3). These outcomes seem to support some of the results presented in this chapter which point to a modest positive effect of group mapping based on the oval-mapping technique. They suggest that there is some effect on the insight policy actors have into the issue, but no effect on the social interaction between them or the way in which they understand each other. It thus contributes more to the reduction of cognitive complexity (aspect differentiation and aspect integration) than of socio-political (balancing interests, participation) or normative complexity (communication, process management).

8. Policy-making in Beneveld: Round 2

8.1 Introduction

In this chapter, the results for the second round of the game/simulation BANS are presented. As explained in Chapter 6,[1] on the second day the players actually develop policy. They no longer concentrate on how to design a process, but on the policy itself. They are challenged to design various policy strategies for the light pollution issue. The municipality of Beneveld has made little progress with this issue since it first appeared on the policy agenda a year ago. Beneveld still wants this pilot to serve as an example for national policy-makers. The Ministry of Housing, Spatial Planning and the Environment announced that it will subsidize the development of light pollution policies. Furthermore, it issued standards regarding the maximum inconvenience lighting will be allowed to cause by 2010. In the meantime, Beneveld's alderman for economic affairs succeeded in attracting a distribution centre for a major supermarket chain to be located in the town's major industrial estate Transfer. Transfer therefore wants to increase the light supply. There have already been complaints about the inconvenience Transfer's lighting and that of the sports centre causes neighbours.

Below, for each of the six quality criteria for problem structuring the observation and survey results are presented for the first city meeting and for the strategy meetings and strategies. Furthermore, the policy tables are also analysed. There are no observation or survey results for process management for the strategies because the nature of these strategies did not allow operationalization of the concept of process management. A more detailed account of the operationalized indicators is presented in appendix 12.

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1 Chapter 6 gives a more in-debt account of the second day of BANS.

8.2 Aspect differentiation

Observation results on aspect differentiation in policy-making
Aspect differentiation (descriptions of this and the other quality criteria for problem structuring have been presented in the previous chapter) in the first city meeting was measured in the same way as on the first day; however, this time the distinction between different content and process aspects became irrelevant since the participants no longer concentrated on process. Aspects were counted in the observation transcripts of the first city meeting and in the policy table. The results for the separate municipalities are presented in Table 8.1. It should be noted that the participants of municipalities in the control group had a certain degree of freedom to organize themselves in one or more sessions parallel to the city meeting of the experimental group at which the ova-mapping technique was introduced. Furthermore, in the policy table a distinction is made between goals, decision areas, and options. (In Chapter 6 an example of such a table is given and its use explained.)

The results for the first city and parallel meetings show that the control group (municipalities 1, 2, 3) did unexpectedly better than the experimental group (municipalities 4, 5, 6). Municipality 3 scored distinctly higher than the other municipalities: we will briefly illustrate the main clusters of aspects this team discussed. Not only light pollution was a topic of discussion, but also the A206 motorway featured prominently, as indeed did the coffee shop and housing issues. This very broad framing of the 'light pollution' issue resulted in a large number of aspects. Connecting so explicitly the light pollution issue with the three other issues of the previous day did not occur in the other five municipalities.

For the policy tables, the experimental group showed it had a more differentiated understanding of the issue. Furthermore, it should be noted that in municipalities 1 and 2, two different policy tables were produced. In municipality 1, the policy tables were made during the strategy meetings when the other municipalities where designing their strategies. Municipalities 3, 4, 5 and 6 had produced one policy table earlier in the process. In municipality 2, the facilitator suggested to produce two tables, which could then be used in subsequent meetings. He intervened when the process seemed to end in deadlock or indecision. The fact that two municipalities each produced two tables implies that the number of aspects they produced should be interpreted with some care. For instance, the most extensive table of municipality 2 does not meet the level of aspect differentiation of the tables of the three municipalities of the experimental group. The total difference in richness between the two groups is therefore higher than the total in Table 8.1.

Table 8.1 Aspect differentiation in policy-making according to observation results

	Control group					Experimental group		
Municipality	1		2		3	4	5	6
1st city or parallel meeting(s)	49		71		102	65	56	56
total	222					177		
* goals policy table	2		2	3	3	3	4	4
* decision areas policy table	3		1	4	11	10	8	7
* options policy table	7	4	26	13	31	36	29	28
subtotal	16		49		45	49	41	41
total	110					131		

Legend: number of aspects are specified for the 1st city/parallel meeting(s) and the policy table.

Summarizing, in the early hours of the process the control group had a more differentiated perception of the issue, whereas, this was the case for the experimental group later on.

The next section describes how participants themselves viewed the degree of aspect differentiation in their meetings and for the strategies they designed.

Survey results on aspect differentiation in policy-making

In Table 8.2 the results of the survey on aspect differentiation are presented. Unfortunately, there are no scores for the group from municipality 2 on their policy tables. As a consequence, the scores for the strategies should be interpreted with care.

When comparing the results for the first city meeting between the experimental and control groups, the former valued the level of aspect differentiation they achieved higher. The difference between the groups is significant ($T(55)^2 = -4.17, p = 0.00^3$). The chance that there is a significant difference on the second day is larger

2 The degrees of freedom differ for the criteria due to the fact that in some instances the variances differ.

3 For the second day there is only one issue which involves all participants. Consequently there are fewer quantitative data, and we can confine ourselves to t-tests as a the primary statistical test. The possibility of a type I error is larger because of the capitalization of chance, which is why we choose for a probability of

because the teams involved in a game/simulation larger (n=14 whereas on the first day the teams existed out of three or four participants).

The groups did not differ in their appreciation of the differentiation of the strategies which were presented. First, the means of the strategies were added up and divided by *n* strategies. For this total, a t-test was performed and the outcome ($T(64)= 0.15$, $p = 0.88$) indicates that the groups do not differ in their views of the level of aspect differentiation of the strategies/tables.[4]

Table 8.2 Aspect differentiation in policy-making: Survey results (means and standard deviations)

	Control group							Experimental group								
Municipality	1		2		3			4			5			6		
1st city or parallel meeting(s)	1.9 0.7		4.1 *0.7*		3.2 *0.9*			4.2 *0.4*			4.1 *0.6*			3.9 *0.8*		
strategies	3.3 *0.8*	3.3 *0.6*	-	-	3.7 *0.9*	3.9 *0.3*	3.4 *0.9*	3.9 *0.9*	3.8 *0.9*	3.6 *1.0*	3.6 *0.8*	3.3 *1.1*	3.2 *0.7*	2.4 *1.3*	4.1 *0.7*	3.5 *1.2*
total for the strategies	3.4[5] *0.5*		-		3.7 *0.3*			3.7 *0.3*			3.4 *0.5*			3.3 *0.5*		

These survey results are not in accordance with the observation results. The more positive view the participants of the experimental group have of aspect differentiation in the first city meeting is not justified on the basis of the observation data. The latter show that it was the control group which had a more differentiated understanding of the light pollution issue (see Table 8.1). For the policy tables, the observations show a higher level of aspect differentiation for the experimental group. Although these results cannot be compared with the survey results for the strategies,[6] we can conclude that the difference in the tables pointed out by the observations, is not sustained in the strategies according to the participants.

$\propto = 0.01$

4 We add 'tables' here since the participants of municipality 1 did not design strategies in the strict sense, but two tables.

5 The scores for strategies have been added up and the mean was calculated per municipality. The outcome may differ from the sum of means per strategy/n strategies since not all respondents answered to all items. All scores were weighed equally.

6 The participants scored the strategies which were based on the policy tables. The observations concern the policy tables themselves.

Summarizing, the intervention based on the oval-mapping technique did not have a beneficial effect on the richness of ideas which emerged in the meeting in which it was introduced. However, the analyses of the strategies and observations suggest that group mapping did have a positive effect on aspect differentiation later on in the process.

8.3 Aspect integration

Observation results on aspect integration in policy-making

The previous chapter described the way in which aspect integration was assesed. For the second day of the game/simulation, the observation transcripts of the control group were again converted into cognitive maps, which were drawn by the researcher. But this time also the maps the facilitator had produced with the experimental groups were converted into the more causal-style cognitive maps which were discussed in Chapter 5.[7] Again, heads, clusters and themes were distinguished and used as indicators for aspect integration. The degree to which aspects are clustered in a meaningful way is an important indicator for integration. A meaningful cluster implies that a more unequivocal and profound understanding is produced by linking aspects. The relationship between clusters was also considered. A variety of clusters which are not linked in any respect score less high on aspect integration than clusters which are linked.

As an example, we briefly discuss how municipality 2 linked the aspects it came up with: aspect integration was marked by a proposal for a complete renewal plan of Transfer. Figure 8.1 shows that there is a large cluster of concepts on this theme. Two medium sized clusters (5-10 concepts) could be pointed out which concerned 'policy-making', and 'safety and crime'. There is one small cluster connecting one of the central concepts - 'reduction of complaints' to the head 'prosperous flora and fauna'. Finally, there was a small cluster of technical solutions. Various concepts were linked in twos to more central concepts (concepts which bring together a number of other single concepts), but were not part of a larger cluster (i.e., strings of concepts). From the observation transcripts it is clear that the participants did not actively link a considerable number of their concepts - these links remain implicit which is shown by the dotted line. Integration was thus limited.

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7 The maps the facilitator made were structured somewhat differently. He organized the concepts into main categories rather than goal-means chains of concepts. As a result, the map of the facilitator could not be used directly in assessing aspect integration. Thus, cognitive maps were drawn for all six municipalities and then compared.

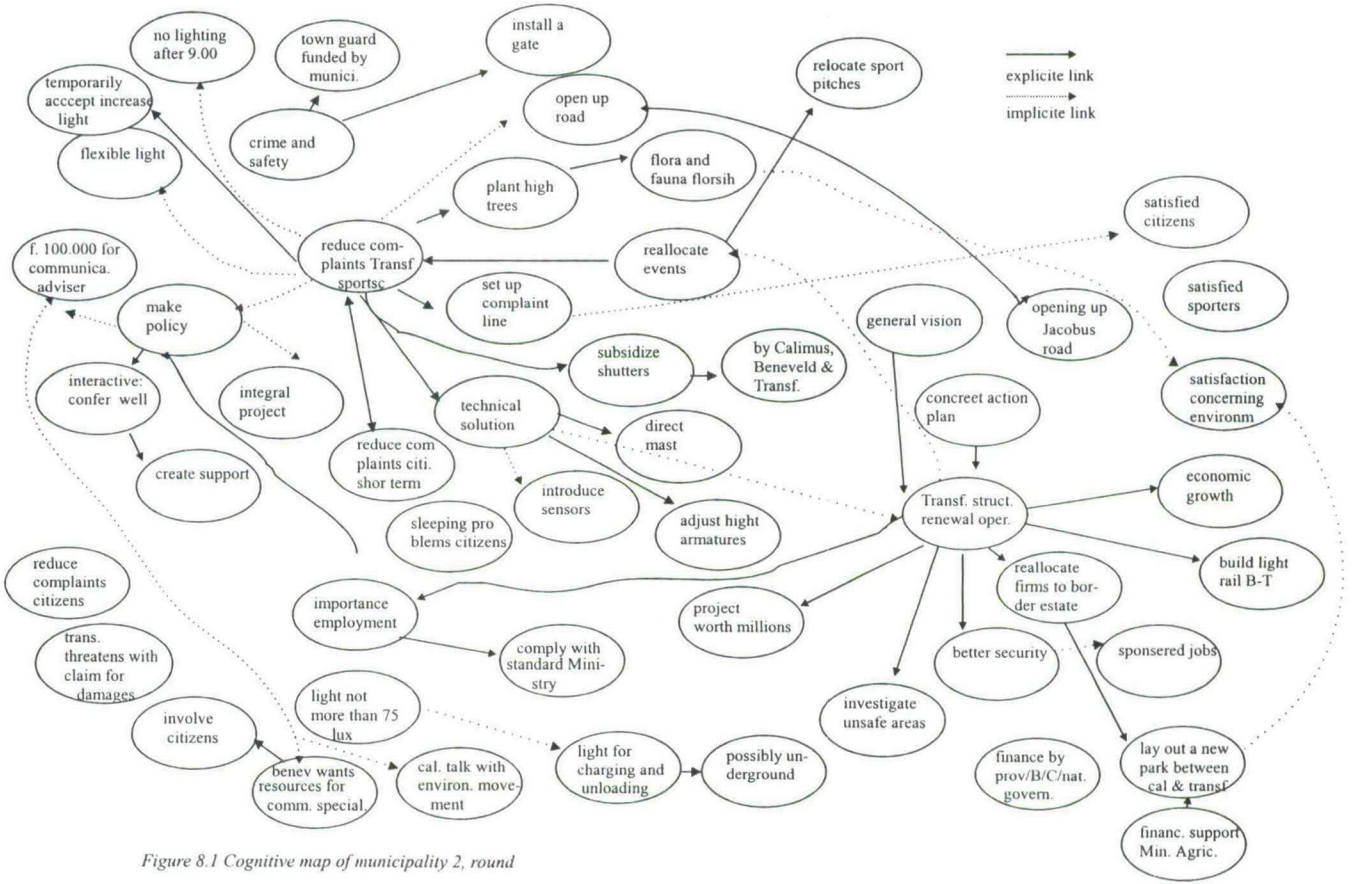

Figure 8.1 Cognitive map of municipality 2, round

Table 8.3 Aspect integration in policy-making according to observation results

	Control group			Experimental group		
Municipality	1	2	3	4	5	6
1st city meeting or parallel meeting(s)	±	±	-	±	±	±
strategies	-	-	+	+	+	6

Legend: ++ = very well, + = well, ± = reasonable, - = poor

As an indication of the degree of aspect integration constituted by the policy product, the design of one policy table rather than two policy tables is chosen. The policy table can be viewed as an indicator for integration. It is used to structure and categorize ideas, thus providing an opportunity to link ideas in a particular way. Two municipalities did not manage to produce one table. Due to the diversity of the issue perceptions they held, they were less successful in integrating ideas. Intervention by the facilitator helped them overcome the deadlock they had arrived at. Table 8.3 gives an overview of the way in which the six municipalities integrated the various aspects. For the first city meeting, there were few differences between the experimental and control groups. The degree of aspect integration the policy table of the experimental group delivered was higher than that of the control group. The three municipalities from the experimental group managed to produce one table, in contrast to the control group.

As indicated above, municipalities 1 and 2 did not succeed in producing one table. Municipality 1 used the strategy meeting for drawing up two separate tables. In municipality 2, again two tables were made (after intervention of the game-director).

Summarizing, the introduction of the mapping technique did not - according to our data- increase the degree of aspect integration. The control and experimental groups did not differ as regards the degree of aspect integration they attained in the first city meeting or parallel meetings. However, the latter did manage to integrate aspects in one policy table in the period after the meeting, while two municipalities in the control group were unable to generate sufficient community of thought. Since the teams risked ending up in deadlock, the option was proposed to deliver two tables. It seems therefore justified to conclude that the control group had difficulties in integrating all aspects in one table. In the next section, the participants' view of the way in which ideas were integrated, are discussed briefly.

Survey results on integration in policy-making

Participants expressed their views of the way in which ideas were ordered in the meeting and by way of the strategies. The results are presented in Table 8.4. For the city meeting, the experimental group scored higher than the control group. The difference is statistically significant as a t-test (of unequal variance) indicates ($T(69) = -5.92$, $p = 0.00$ (two-tailed)). For the strategies, there seems to be little difference between the two groups. This is confirmed by a t-test ($T(64) = -.074$, $p = 0.46$ (two-tailed)).

Table 8.4 Aspect integration in policy-making: Survey results (means and standard deviations)

	Control group							Experimental group								
Municipality	1		2		3			4			5			6		
1st city or parallel meeting(s)	2.0 0.8		2.9 *1.1*		2.9 *0.7*			4.1 *0.3*			3.9 *0.6*			3.5 *1.1*		
strategies	3.2 *0.8*	3.3 *0.8*	-	-	3.9 *0.9*	3.9 *0.6*	3.3 *0.9*	3.7 *1.2*	3.8 *0.8*	3.9 *0.9*	3.9 *0.9*	3.3 *1.1*	3.4 *0.6*	3.4 *1.4*	4.1 *0.7*	3.6 *1.1*
Total of strategies	3.4 *0.7*		-	-	3.7 *0.5*			3.8 *0.5*			3.5 *0.6*			3.7 *0.8*		

These survey results - except for the scores of municipality 3 - do not confirm the observation results. While the observations indicate that there is no difference in aspect integration during the city meeting but only a higher score for aspect integration of the experimental group's policy tables, the survey results suggest something different. The participants of the experimental group clearly valued the integration of the ideas in the city meeting more positively, but their appreciation of the strategies did not differ.

Summarizing, according to our observations aspects were initially not better integrated by the experimental group than the control group; this is contrary to our expectations. Nevertheless, the fact that the experimental group scored higher on aspect integration with regard to their policy tables suggests that the method did have a delayed effect.

8.4 Balancing interests

Observation results on balancing interests in policy-making
The way - according to the observations - in which the municipalities balanced the various interests is presented in Table 8.5. These results refer to the first city meeting, the strategy meetings,[8] and to the policy strategies. Operationalization of 'balancing of interests' in the meetings of the second day of the game/simulation was identical to those of the first day. The degree to which interests were balanced in the policy table was assessed by counting actors which were mentioned as taking part in the process. We briefly discuss the results for municipality 1.

Interests were initially rather well balanced in municipality 1, but this changed in the course of time. There were two brief parallel sessions which preceded the city meeting and which brought together interest groups and local politicians. At these meetings, the alderman for economic affairs emphasized that sustaining employment and the well-being of citizens were the primary goals of his council. Furthermore, a policy adviser emphasized that he wanted to bring about a solution in close cooperation with other organizations. He thus expressed his intention to involve various interests in the issue. At the city meeting, which brought together all participants, the emphasis changed to own interests rather than the common good. Transfer initially advocated a broad perspective, but in the end it wanted the Welfare Foundation to be removed from the discussion because the pitches were not in their interest. The Welfare Foundation had, earlier, already stated that it did not understand why Transfer was present, thus suggesting that Transfer did not really have an interest in the issue. At the city meeting, the broad, common orientation on the issue prevailed. However, most participants advocated their own interests and some defended public interests. In conclusion, interests were not balanced very well at the meetings.

Since the policy advisers failed to produce a policy table, the participants split up in two groups and produced their own policy tables. In the group discussing the supply of light in relation to the industrial estate, interests were somewhat less balanced. The meeting was partially led by a facilitator who concentrated on Transfer's experience regarding new production concepts, safety and security and working conditions. As a result, the representative of Calimus felt rather neglected. He suggested that, apparently, only Transfer was considered a relevant interested party. Overall, the participants were eager to cooperate and hence pay attention to the various interests involved: personal interests did not dominate.

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8 These are the meetings in which the strategies were designed with the aid of the policy table.

The group which concentrated on the theme 'sports and light' produced its table in a relatively short time and in relative consensus. Personal and common interests seemed to coincide. In the policy tables few particular interests were specified.

Table 8.5 Balancing interests connected with light pollution policy-making according to observation results

	Control group							Experimental group						
municipalities	1		2		3			4	5			6		
1st city meeting or parallel meeting(s)	±		±		+	±		+	+			+		
strategy meetings	±	+	+	+	+	±	+	+	+	±	±	±	+	+
policy table	±	±	+	+	+			+	+			+		

Legend: ++ = very well, + = well, ± = reasonable, - = poor

As Table 8.5 shows, at the first city meeting interests were better balanced by all three municipalities from the experimental group. For the strategy meeting however, the two groups did not differ in the way in which interests were balanced,[9] nor did the policy tables the groups produced vary substantially in the way they paid attention to interests.

Survey results on balancing interests in policy-making

In this section, the participants' views are presented on how they felt that partial interests were being taken care of. The results of the survey questions are presented in Table 8.6. When comparing the results for the first city meeting between the experimental and control groups, interests seem to be better balanced in all three experimental groups. The strategies indicate that there is no clear difference between the two sets of municipalities. A t-test (equal variance) confirms that there is a significant difference between the experimental and control groups (T (70) = -2.68, p = 0.009) at the city meeting but no significant result for the strategies (T (64) = -0.00, p = 0.16).

9 The scores for the municipalities 2 and 3 are the same as those for municipalities 4 and 6, respectively. Municipality 1 scores somewhat higher than municipality 5. Since only one of the three municipalities of the control group scores higher, the difference is regarded as too small to decide that the groups differ in the way in which interests were balanced at the second sounding board meeting.

A comparison with the observation results shows that the observations are confirmed by the participants' experience. The initial advantage the experimental group seemed to have at the first city meeting disappeared during the day. Although the results for the policy table and strategies cannot be compared straightforwardly, both data sets suggest a similar trend towards a less difference between the two groups.

Table 8.6 Balancing interests in policy-making: Survey results (means and standard deviations)

	Control group							Experimental group								
municipality	1		2		3			4			5			6		
1st city or parallel meeting(s)	2.5 0.8		3.4 *1.2*		3.2 *1.0*			4.0 *0.9*			3.7 *0.8*			3.5 *1.1*		
strategies	3.1 *0.9*	3.3 *0.7*	-	-	3.2 *1.0*	3.5 *0.5*	3.0 *0.8*	3.8 *1.1*	3.7 *0.8*	3.4 *1.3*	2.8 *0.9*	3.0 *1.2*	3.4 *1.2*	2.3 *1.4*	3.6 *0.8*	3.4 *0.9*
total strategies	3.2 *0.7*		-		3.2 *0.5*			3.6 *0.5*			3.1 *0.7*			3.1 *0.6*		

Summarizing, both the observation and survey results suggest that, initially, the oval-mapping technique contributed to balancing the interests, but during the day this difference disappeared. Hence, the method did not have a sustainable effect.

8.5 Participation

Observation results on participation in policy-making

In this section, the observation results on the actual contribution of the various municipalities to the policy-making process are discussed. The operationalization of the criterion 'participation' was given in the previous chapter and was assessed in the meetings of the second day in the same way as on the first day. As for the process architecture, we tried to establish for the policy table what actor might become involved in the policy-making process and what the nature of that involvement would be. Again, the results presented in Table 8.7 are illustrated here by the outcomes for one municipality, municipality 2.

Municipality 2 (part of the control group) held two successive rounds of talks (parallel to the city meeting of the experimental group). In the preparatory meeting, participation was high. All stakeholders participated actively in this round. Policy-advisers and aldermen from Beneveld visited the stakeholders, who explained their

various positions. Calimus was cooperative and Transfer designed and discussed a proposal for restructuring the industrial estate. The policy-adviser offered Calimus the support of a communication specialist they had hired. During the subsequent meeting of the policy-advisers and aldermen, the stakeholders were waiting wearily for the city meeting to begin. Participation in the city meeting was somewhat limited. The interest groups were only asked to confirm whether the policy-advisers had correctly presented their position. The representative from Transfer - who strongly dominated the meeting - threatened at some point to leave.

After the city meeting, two groups were formed to discuss the two policy tables which were designed. One group discussed the restructuring of Transfer. Participation here, was reasonably high. The group started discussing the map Transfer had drawn, not the policy table. Transfer insisted on a joint declaration of intentions. Calimus agreed, but argued that - if necessary - it would not refrain from legal action. Transfer clearly dominated the session again. Participation in the other group which discussed a table for a general light policy, was likewise reasonably high. On the whole, the participants had an equal share in the discussion and asked critical questions, making suggestions and statements.

The first policy table on the restructuring of Transfer gave some indication about the financial involvement and, hence, participants of organizations in the renewal policy. The table/strategy designed by the other group gave limited indication about who would participate in the policy- making process.

Table 8.7 Participation in policy-making according to observation results

	Control group							Experimental group						
Municipalities	1			2			3	4			5			6
1st city meeting or parallel meeting(s)	+	±		+		+	±	+			+			+
	+			±										
strategy meetings	±	+		+	+	+	±	+	±	+	+	±	+	+	+
policy table	-			+	-	+	+	-	+			-			+

Legend: ++ = very well, + = well, ± = reasonable, - = poor

A comparison of the results of the city meeting and the parallel meetings for all six municipalities shows that participation of the three municipalities in the experimental group was somewhat higher than in the control group. All three municipalities in the control group participated somewhat less active. For the

strategy meetings, the two groups did not differ in the way they participated. The policy tables of the experimental group gave some more room for future participation of stakeholders than the tables of the control group. Two municipalities of the experimental group (4 and 6) scored higher than two of the control group (2 and 3).

Survey results on participation in policy-making

The participants' appreciation of their own contribution to the meetings and possible future contribution to policy-making is shown in Table 8.8. The results for the first city meeting indicate that there is no significant difference between the experimental and control group. However, there is a trend for the former to score higher ($T(70) = -2.07$, $p = 0.042$). The means for the totals of strategies indicate that there is little difference between the two groups ($T(64) = -0.22$, $p = 0.16$).

Table 8.8 Participation in policy-making: Survey results *(means and standard deviations)*

	Control group							Experimental group								
Municipality	1		2		3			4			5			6		
1st city or parallel meeting(s)	2.8 *1.0*		3.2 *1.2*		3.6 *0.8*			3.9 *0.6*			3.6 *1.0*			3.5 *1.0*		
strategies	3.1 *1.0*	2.8 *1.3*	-	-	3.3 *1.0*	4.0 *0.8*	3.0 *1.2*	3.4 *1.3*	3.5 *1.1*	3.2 *1.4*	2.9 *1.6*	3.2 *1.3*	3.1 *1.2*	3.3 *1.0*	3.8 *1.2*	3.6 *1.3*
total for the strategies	2.9 1.0		-	-	3.4 0.5			3.3 0.5			3.1 0.5			3.5 0.6		

A comparison of the observation and survey results for the city meeting shows that the difference in participation the observations indicate is supported by the survey results, albeit, that the difference in the survey results is not statistically significant. Furthermore, the outcomes for the policy table which are presented in Table 8.7 indicate a similar trend in the relative scoring of municipalities as the survey results for the strategies. However, the difference noted in participation as it is captured by the policy tables does not reappear in the survey results for the strategies which are based on those policy tables.

In conclusion, in the first hours of the game/simulation participation was somewhat higher for the experimental group and their policy tables ensured a higher degree of participation, but this was not the case for the strategy meetings.

8.6 Communication

Observation results on communication in policy-making
Communication refers to the degree of cognitive and mutual understanding in the teams. A more elaborate description of this criterion and its operationalization was presented in 7.2.6. We confine ourselves here to a description of the way in which communication took place in the city meeting and strategy meetings of municipality 1. Table 8.9 presents the observation results for all six municipalities.

Communication in both preparatory meetings municipality 1 organized was somewhat limited. In the preparatory meeting of the local politicians, communication was hampered by an atmosphere of distrust. There was tension and irritation between an alderman and a councillor. However, there was reasonable mutual understanding and participants comprehended the various positions. The meeting of the stakeholders was occasionally marked by confusion as a result of a difference in knowledge. Thus, cognitive understanding was limited. Although there was initially some irritation between the Welfare Foundation and Transfer, the participants seemed to listen to and understand each other. Communication in the subsequent city meeting was rather bad. The mood during this meeting - which brought together all participants - was tense and quarrelsome. Participants listened but mutual understanding was limited. Some participants argued that the representatives of the municipality Beneveld communicated insufficiently with the other parties.

Table 8.9 Communication in policy-making according to observation results

	Control group							Experimental group						
Municipalities	1		2		3			4	5			6		
1st city meeting or parallel meeting(s)	±	±	+		-	+		+	+			+		
			-											
	-		-											
strategy meetings	+		+	±	+	-	+	+	±	-	±	±	±	+

Legend: ++ = very well, + = well, ± = reasonable, - = poor

Communication in the two strategy meetings went well. Participants discussing the policy table for the industrial park listened well and there was considerable mutual

understanding among them. In the other group, communication was well too. The atmosphere was very friendly and open and participants showed mutual and cognitive understanding.

There are no results for the policy table. The policy instrument provided little information on arrangements for future communication between the policy actors. Hence, we were unable to assess communication for this intermediary policy product.

The observation results for the first city meeting and parallel meetings suggest that communication in the three municipalities of the experimental group was, on the whole, better than in the control group. For the strategy meetings, however, the opposite was true; here communication in the control group was better. Hence, a possible positive initial effect of the oval mapping technique did not have an influence beyond the city meeting in which it was introduced.

Survey results on communication in policy-making

The participants' view on mutual understanding in the city meeting is presented in the table below. Table 8.10 gives the survey results for communication in both the city and parallel meetings and for the degree in which the policy strategies expressed mutual understanding.

Table 8.10 Communication in policy-making: Survey results (means and standard deviations)

	Control group							Experimental group								
Municipality	1		2		3			4			5			6		
1st city and parallel meeting(s)	2.1 0.6		2.9 *0.8*		2.9 *0.8*			3.2 *0.7*			3.6 *0.9*			3.2 *0.9*		
strategies	3.5 *0.7*	3.6 *0.8*	-	-	3.3 *1.0*	3.7 *0.5*	3.4 *0.8*	3.5 *1.1*	3.8 *0.9*	3.5 *1.2*	3.0 *1.1*	2.8 *1.3*	2.9 *1.3*	2.3 *1.4*	3.7 *0.5*	3.5 *0.9*
Total of strategies	3.6 *0.6*		-		3.5 *0.5*			3.7 *0.4*			2.9 *0.9*			3.2 *0.4*		

Communication in the city meeting of all three experimental municipalities was perceived more positively than of the corresponding meetings of the control group. For two out of three meetings, the difference is significant ($T(72) = -3.74$, $p = 0.00$).

However, the scores for the policy strategy totals indicate a more positive score for the control groups. For the strategies, a t-test suggests a trend ($T(64) = 1.85$, $p = 0.06$).

A comparison of the observation and survey results for the city meeting shows that the trend the observations indicate is supported by the survey results: communication in the experimental groups was better. Although the strategy meetings and their outcomes cannot be compared, the data sets do suggest that a change during the day occurred in favour of the control group. The municipalities' ranking according to the survey scores for the strategies, matches by and large that of the observation scores for the meetings in which the strategies were designed.

Summarizing, both the observation and the survey data suggest that, initially, communication was better in the experimental group. However, during the day this changed. The control group scored higher on communication in the strategy meeting and the strategies it designed.

8.7 Process management

Observation results on process management in policy-making

For the operationalization of our sixth quality criterion 'process management' we refer back to the previous chapter. Process management concerns the way in which communication in policy-making processes is steered and organized by the formal and/or informal 'leader'. The observation results for process management in the various meetings are presented in Table 8.11. To illustrate these findings the results for municipality 5 will be briefly discussed here.

The process of the city meeting in municipality 5 was managed reasonably well. The policy adviser opened the meeting and explained the policy issue to be discussed. More insight into the issue was his aim. He then gave the floor to the Welfare foundation but a colleague intervened and said it was the facilitator who should continue. The facilitator explained that language is a slow medium and that the oval mapping technique could enhance communication. Participants were asked to confer among themselves and write ovals. They were then asked to present their ovals in turns. The facilitator briefly summarized the essence of what the participants contributed and organized the ovals on the wall. Towards the end of the session, the facilitator addressed the various clusters he made. He praised the participants for what they had achieved.

Three strategies were developed in municipality 5. One concerned the future of Transfer. In the meeting where this strategy was designed, process management was limited. The policy adviser was overshadowed by the representative of Transfer, who took all decisions in a very short time. There was also little process management in the meeting discussing 'the interests of citizens'. The meeting was rather chaotic and people were speaking simultaneously. The policy adviser who chaired the session was clearly aware of the need of a group product. He mentioned

it several times. Yet, limited effort was put into bringing this about. Process management in the third group - with the goal 'restrict damage to the environment' - was initially chaired by Transfer and, later, by the policy adviser for environmental affairs. The meeting was somewhat structured but partly chaotic.

Table 8.11 gives an overview of the observation results for all six municipalities.

Table 8.11 Process management in policy-making according to observation results

	Control group							Experimental group								
Municipalities	1			2			3			4			5			6		
1st city meeting or parallel meeting(s)	-	±		-			+	±		+			+			+		
	+			±														
strategy meetings	±	+		±			+	-	+	±			±	-	±	+	±	+

Legend: ++ = very well, + = well, ± = reasonable, - = poor

During the city and parallel meetings the process was better managed in all three municipalities of the experimental group where the facilitator was in charge. Due to his position as a relative outsider, he was able to convince people. However, this result was not repeated during the second part of the day: in the strategy meeting, the two groups did not differ in the way the process was managed.

Survey results on process management in policy-making

Do the participants themselves subscribe to the observation outcome? In Table 8.12 the participants' view of the way in which the meetings were led is presented. When comparing the results for the first city and parallel meeting(s) between the experimental and control group, process management in two of the three meetings was evaluated more positively. A t-test (equal variance) confirms a significantly positive difference between the experimental and control group ($T(70) = -3.59$, $p = 0.00$) as regards the city meeting. It was not feasible to relate 'process management in any way to the content of the policy table or strategies, so there are no survey results for the products.

A comparison of the observation and survey results for the first city and parallel meeting show that the observation findings are supported by survey results.

Initially, process management was better in the experimental group. The participants themselves confirm this observed difference between the groups. However, later on in the process this difference disappeared.

Table 8.12 Process management in policy-making on light pollution according to survey results (means and standard deviations)

	Control group			Experimental group		
Municipality	1	2	3	4	5	6
1st city or parallel meeting(s)	3.1 *0.9*	2.6 *0.8*	3.2 *0.7*	3.1 *1.4*	3.6 *1.0*	3.8 *0.5*

8.8 Conclusion

In this chapter, the results for the second day of our game/simulation BANS were presented. The introduction of the intervention based on the oval-mapping technique seems to have had some effect on problem structuring if we consider the outcomes for our six quality criteria. The relationship is, however, rather ambiguous. As Table 8.13 demonstrates, initially there was a positive effect on the level of balancing interests, participation, communication and process management. The experimental group had a more positive view of aspect integration but our observations suggest that the control group actually had a more differentiated view of the issue. The results for the policy table suggest that in the course of the policy-making process, the intervention based on the oval-mapping technique seemed to have a long-term positive effect only as regards aspect differentiation, aspect integration and participation. The effects found for the other criteria in the first city meeting were not sustained. In fact, the control group scored higher on communication in the strategy meetings than the experimental group.

Summarizing, there is a short-term positive effect of the intervention based on the oval-mapping technique but its long-term effect is more limited.

The participants were asked about their experiences with group mapping (see also appendix 10). The participants view the intervention merit predominantly in terms of a reduction of cognitive complexity rather than of socio-political or normative complexity. They neither agree nor disagree with the proposition that the technique increases mutual understanding and reduces conflict between interests. The participants' appreciation of the technique is largely in accordance with the empirical results presented in this chapter, which suggest that there is a long-term effect on aspect differentiation, aspect integration and participation.

Table 8.13 Summary results of round 2

	Observation results						Survey results[10]					
Criteria	1	2	3	4	5	6	1	2	3	4	5	6
city/parallel meeting(s)	c	0	3/3	3/3	3/3	3/3	e	e	e	(e)	e	e
policy table	e	2/3	0	3/3	/	/	/	/	/	/	/	/
strategy meeting	/	/	0	0	-2	0	/	/	/	/	/	/
strategies	/	/	/	/	/	/	0	0	0	0	(c)	/

Legend: 1 = aspect differentiation; 2 = aspect integration; 3 = balancing interests; 4 = participation; 5 = communication and 6 = process management; c = control group scores higher; e = experimental group scores higher[11]; (e) there is a trend for the experimental group, (c) = there is a trend for the control group; 1/3, 2/3, 3/3 = one, two or three municipalities of the in total 3 municipalities in the experimental group score(s) higher; -1/3,-2/3,-3/3 = one, two or three municipalities from the in total 3 municipalities in the control group scores higher; 0 = no difference between groups was found; / = no data are available

10 For the survey, it is indicated whether the t-test showed a significant difference in the way the experimental and control group scored.

11 These scores (c/e) apply in this summary only to aspect differentiation which was assessed at the level of the two groups is not specified further for the municipalities within those groups.

9. Conclusions

9.1 Introduction

The focus of this study is problem structuring in participatory policy-making processes. Problem structuring refers to activities of representatives of various organizations which are directed at influencing the definition of an issue. Policy making is an iterative process in which policy-structuring actions i.e., activities directed at sensing and searching, selecting and building aspects of the policy issue with the aim to create order and transparency, may evolve concurrently with activities directed at policy development and policy implementation.

Increasingly, problem structuring has become the subject of interventions by facilitators. In our research, we have tried to establish whether such an intervention contributes to the quality of problem structuring in participatory policy-making processes. The method studied is based on the oval-mapping technique, one of the techniques that are used in Strategic Option Development and Analysis (SODA). It was designed by Eden et al. (1979, 1983, 1992, 1998a), and was chosen from a number of methods to facilitate problem structuring. SODA has the advantage that it makes use of the idiosyncratic notions and language in which people express themselves. Thus, it is in accordance with the social constructivist thought on which this research is founded. Furthermore, the other methods tend to focus more on policy development and implementation, whereas SODA seems better-equipped for problem structuring.

An additional research question was how gaming/simulation can be used as a method for policy-science research. A game/simulation was chosen to serve as a research environment to test a problem-structuring method. BANS, the game/simulation for training civil servants in participatory policy-making was used as the experimental setting. The oval-mapping technique on which we based our intervention, was chosen from the SODA tools because it was best suited for facilitating problem structuring in a game/simulation. In its application it differed in

some respects from the guidelines specified by its designers (Eden and Ackermann,1998a). Its cyclical nature of idea generation and structuring was not upheld.

Section 9.2 gives an outline of the research. In section 9.3, our findings regarding the problem-structuring method are presented. Some explanations of the results are discussed in 9.4. Section 9.5 addresses the relevance of gaming/ simulation for conducting policy-science research. Finally, some suggestions for further research are given in 9.6.

9.2 Testing problem structuring in a quasi-experiment

In this study, we have explored whether a method of problem structuring contributes to a better structured policy issue. These policy issues tend to be complex issues. Their complexity is characterized by three dimensions. Cognitive complexity refers to the extent to which an issue involves substantial and/or very specialized information which is partly difficult to obtain or to judge. Issues that are highly cognitively complex involve a lot of variables that are frequently interrelated, and hence it is difficult to assess the consequences of certain developments and interventions. Socio-politically complex issues involve many actors who form complex social networks and have many different institutional interests to defend. Finally, normative complexity can be defined as the level of contention among the policy actors about the underlying norms and values they hold regarding the issue.

To assess the quality of problem structuring, we defined six quality criteria. These criteria correspond to the three dimensions of complexity. Aspect differentiation and aspect integration focus on the cognitive complexity of the issue. Aspect differentiation refers to the richness of ideas the policy makers hold about the issue. Aspect integration concerns the extent to which the various issue aspects are ordered and linked to each other to form clusters of ideas which add meaning and transparency to the policy actors' understanding of the issue. Balancing interests and participation correspond with the socio-political complexity of an issue. Balancing interests concerns the way in which the various interests involved in the policy-making process are being considered and addressed. The criterion of participation concerns the extent to which the stakeholders actually contribute to the process in terms of money, time, and energy. Communication and process management correspond with the normative complexity of an issue. Communication refers to the level of cognitive and mutual understanding amongst the policy actors. Our sixth criterion, process management, concerns the way the debate among the actors is organized and structured. These six quality criteria provided the framework for empirically assessing the quality of problem structuring.

The game/simulation BANS simulates a policy-making process of a local government and takes two days. It was designed as a training tool. On the first day, the 14 players play 5 parties (aldermen, policy advisers, a welfare foundation, an industrial estate and a neighbouring village), which have to design a process architecture for four policy issues. These four issues are (1) light pollution, (2) the housing of cultural, educational, and health and social work organizations, (3) the routing of the A206, a new motorway in the west of the town, and (4) the coffee shop issue which concerns the sale of soft drugs. The second day of the game, all 14 players deal with the light pollution issue. They are asked to design some alternative policy strategies for this issue.

Our measuring instruments were questionnaires, which registered the participants' assessment of the six criteria, and observations. In the observation protocols independent observers (on day 1 there were four observers and on day 2 there were three observers) wrote down conversations of players and filled in questionnaires. The observation questionnaires contained questions on indicators corresponding with the six quality criteria. An elaborate account of the data collection and data analysis can be found in Appendix 12.

The experiment was a post-test only design. Six municipalities in the Netherlands participated in the game. Each of the six teams consisted of civil servants and representatives of their municipal network. In some instances a few local politicians participated. These were equally divided across the two groups. We thus aimed to simulate their policy networks. Three municipalities made up the experimental group. They were supported by three facilitators and the game director, who applied group mapping based on the oval-mapping technique. The other three municipalities were left to pursue their own policy process, but the municipalities in both groups were assisted in the game/simulation by other policy instruments such as an actor analysis and the policy table.

Oval mapping involves a group of policy makers who write their own ideas about a policy issue on oval-shaped papers which are, subsequently, stuck on a wall. The flow of ideas is triggered by a question which captures the issue that needs to be tackled. The ovals that are stuck on the wall are rearranged by a facilitator jointly with the group. It is the facilitator's task to stimulate idea generation, to structure ideas and to manage the process.

9.3 Does method matter?

9.3.1 The results of the six criteria for problem structuring

In this section, the main conclusions of our quasi-experiment with the group mapping intervention based on the oval-mapping technique will be discussed. The

results will be presented for the six criteria separately. In the analysis of the data the observation results were given more weight than the survey data. The data enable us to draw conclusions about the possible effect of the method. A distinction will be made between a short-time effect and a long-time effect. The short-time effect indicates that a difference between the control and experimental group has become manifest in the first meeting in which the method was introduced. A long-time effect refers to a difference between the groups further on in the process in a second meeting and in the outcome of the process, i.e., the policy product.

Aspect differentiation

The method does not have a beneficial effect on aspect differentiation in the short term. A recurrent pattern for 4 out of 5 issues[1] was that, initially, the experimental group had a less rich idea of the issue than the control group. In the longer term, the experimental group had a more differentiated understanding of the issue. The method seems to contribute to retaining the richness of ideas. The oval map supported divergent thinking because it seemed to work as an external memory.

Aspect integration

How did the intervention affect our second criterion, aspect integration? The data indicate that various aspects of the issue were not altogether well integrated by the policy actors from some municipalities from the control group, neither in the policy process nor in the product of that process. The experimental group, in comparison, already had a number of steps defined and ordered early on in the process. This was most evident for the coffee shop and housing issue. Aspect integration is the only criterion on which the groups in these two issues differed for both the short (the first meeting) and long term (the second meeting), and for the process architecture. Thus, the experimental group held a more integrated view of the issue which in part arose early in the process. On the second day of the game, this trend became more apparent. Problem structuring in terms of aspect integration tended to be more efficient in the experimental group. The external memory function of the oval map also assisted the integration process.

Summarizing, group mapping based on the oval-mapping technique appears to affect the way aspects are integrated by the policy actors positively. During both days of the game/simulation, the linking of aspects resulted in an acceleration of the process. Players from the experimental group tended to have a more integrated draft proposal earlier in the process. Again, the external memory function of the map seems to contribute to this outcome (cf. Eden and Ackermann, 1998a: 71).

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1 The five issues refer to the four issues of the first round and the issue of the second round.

Balancing interests

The results for the third criterion, balancing interests, are ambiguous. There appears to be a positive effect in the longer term for the coffee shop and housing issues in terms of the outcome, i.e., the process architecture. For the second day of the game/simulation, the data suggest a short-time effect. All three municipalities assisted by the facilitator did balance the various interests better than those of the control group. It is difficult, therefore, to draw general conclusions for this criterion.

Concluding, the intervention which is based on the oval-mapping technique had only a limited effect on the way the two groups balanced the various interests involved in the issues. The results for the second day indicate that the technique only has an effect when many different parties are involved and, as a consequence, socio-political complexity increases. On the second day, all 14 players dealt with the same issue, whereas on the first day, they were divided over four issues.

Participation

The fourth criterion concerns the level of participation. For the first day of the game/simulation there is no short-term effect, but there is a short-term effect for the second day of BANS. Furthermore, the results suggest that there is a long-term effect of the method in all instances except for the light pollution issue. Our results show that in the short term, policy actors in the experimental group were not working harder or spending or pledging more energy, time, or money than their counterparts from the control group. This changed further on in the policy-making process. Both the process architecture - the policy outcome produced on the first day of the game - and the findings of the second day of the game suggest a higher level of participation on behalf of the experimental group. These rather modest results seem to contradict to some extent what designers of problem-structuring methods indicate as a powerful characteristic; their ability to bind different actors into a group and raise their commitment to the process they are involved in.

Communication

Communication is our fifth criterion. Generally, the effect the intervention based on the oval-mapping technique had on communication is limited. In the housing case, the experimental group did score higher and only for the process architecture. In the light pollution issue, the control group scored higher on communication during the first sounding-board meeting, both in terms of observation and survey results. For the other issues there was no effect.

For the second day, there is only a short-term effect of the group-mapping technique. In the meetings in which the participants constructed strategies with the aid of the table, communication was better in the control group.

Summarizing, the pattern which emerges from the data on communication suggest that the technique had a limited effect on this criterion.

Process management

Process management is our last criterion. Our data, suggest that, on the first day, the contribution of the facilitator who introduced the method did not lead to a better organized process during the subsequent (unfacilitated) meetings of the sounding boards. Nevertheless, in the process architectures for the housing and coffee shop issues the experimental group did differ significantly in the way they organized the future process. Overall, the results for the first day suggest a rather modest effect of the intervention. The results for the second day of the game/simulation indicate that when the facilitator was leading the discussion in the experimental group, the process was indeed managed better than that in the control group. During the strategy meetings later on in the process, both groups did not manage the debate very differently.

Summary of results

The problem-structuring method matters only to a limited extent. Its influence is less pronounced than we expected. Aspect integration is the criterion which appears to be most strongly affected by the method, followed by aspect differentiation. For the latter, there is only a positive effect in the longer term (second SBM and process architecture). There is some indication that for participation and process management, and to a lesser extent for balancing interests, group mapping has some effect on the outcome of the process on the first day. The results of the second day show a short-term effect for all criteria except aspect differentiation and an effect on the strategies for the criteria of aspect integration and participation.

9.3.2 The results in terms of the two rounds of policy-making

We have discussed whether the experiment with the intervention based on the oval-mapping technique resulted in different performances of the experimental and control group in terms of the six criteria for problem structuring. Overall, the effect of the method appeared to be limited. Furthermore, group mapping affected not only the six quality criteria differently, but it also produced different results for the two days of the game/simulation.

On the first day of the game, the effect in terms of the six quality criteria seemed the largest at the end of the day. For some criteria it was only the end product of that day which indicated a difference between the control and experimental group. This pattern suggests that the immediate effect of the method is

limited on the first day, but later on in the process the effect becomes more visible. Thus there seems to be a delayed effect of the method.

The results for the second day show a different pattern. Here, the observation outcomes indicate that the experimental group scored higher for balancing interests, participation, communication, and process management in the first phases of the policy-making process in which the intervention based on the oval-mapping technique was introduced. The survey results show a positive effect for all six criteria. The short-time results for the second day, therefore differ substantially from the corresponding results of the first day.

For the second day, the observation results for the policy table and strategy meetings show that the experimental group scored higher on aspect differentiation (policy table), aspect integration and participation (strategies). (For communication and process management no data were available.)

Summarizing, the way problem structuring faired in terms of the six quality criteria differs for both days. For the first day there seems to be a limited effect in the meetings in which the intervention based on the oval-mapping technique was introduced. It is for the end product of the first day that both groups differ most in the way they structured their respective issues. The results for the second day present a somewhat different picture. Here, the effect seems to be the largest in the first part of the policy-making process. Although the data for the longer term effects are not quite complete, they appear to suggest that the difference between the groups is somewhat decreasing in the course of the second day.

In conclusion, on the first day the effect of the group mapping intervention was not on process but on the outcome of that process, whereas on the second day the effect was strongest early on in the process.

9.4 Explaining the results

The outcomes of our quasi-experiment presented above will be assessed here, and general conclusions will be drawn.

Influencing cognitions

The intervention based on the oval-mapping technique seems to have affected the criteria of aspect integration and aspect differentiation strongest. Hence, its effect is of a predominantly cognitive nature, for it seems to:

- make the ideas in the heads of policy makers explicit;
- bring order to the ideas;
- prioritize these ideas;
- assist in retaining these ideas.

This latter trait suggest that the map functions as an external memory board which makes it easier for the participants to hold on to their ideas of the issue. The presence of the group map apparently helps policy actors to overcome some of the cognitive limitations memory besets (cf. Hogarth, 1980). The policy advisers used them as their single most important source of information for constructing the process architectures and policy tables.

The effect the intervention had on socio-political and normative complexity is less pronounced. Participants:

- share information;
- focus interaction by means of the group map (cf. Massey and Wallace, 1996);
- do not seem to become genuine co-owners of a group map.

Summarizing, group mapping based on the oval-mapping technique has a positive but rather narrow effect on the quality of problem structuring in policy-making processes. Its effect is of a predominantly cognitive nature, and there is only a limited visible effect on the socio-political and normative complexity of policy issues.

Aspect differentiation and production blocking

A second finding we wish to address here concerns aspect differentiation, one of the two criteria which are most strongly affected by the intervention with the mapping technique. The results demonstrate a striking pattern. In virtually all issues of the first day and the issue of the second day, the control group initially had a richer understanding of the issues whereas, in the long term, the experimental group performed better on this criterion. Psychological research on group performance has shown that brainstorming techniques do not really increase the level of aspect differentiation (Wilke and Knippenberg, 1996). The oval-mapping technique has some of the characteristics of a brainstorming exercise since participants can take notice of the various concepts which are contributed to the group map and are encouraged to respond to each other's ideas. Unlike some brainstorming groups, participants working with the oval-mapping technique are encouraged to 'talk' simultaneously. Diehl and Stroebe (1987) conducted a comparative study of group performance in brainstorming and nominal group sessions and concluded that production blocking is a major factor in explaining the lower scores of brainstorming groups in comparison with nominal groups. Production blocking refers to the fact that in brainstorming sessions participants speak in turn and this discourages them to participate; they might forget ideas or are prevented from thinking of new ones. The oval-mapping technique enables people to talk simultaneously but also to respond to each other's ideas. During a number of sessions in our experiment in which group

mapping based on the technique was introduced, the participants were reluctant to talk simultaneously but started taking turns.[2] Nevertheless, production blocking seems not to be the right explanation for the pattern we found in the results. After all, the participants in the meetings of the control group were also subject to the risk of production blocking since they were discussing issues freely, taking turns as is the custom. Furthermore, on the second day group mapping was introduced like a nominal-group technique. The representatives of the various organizations first wrote down the ideas of their organization on the ovals before meeting again in a session with the other participants and presenting their ideas in turn. The results of the second day did not differ from those of the first day. Again, these outcomes are contradictory to research findings on difference in group effectiveness between brainstorming - and nominal-group techniques. On both days, the applied problem-structuring method did inhibit aspect differentiation in the short term. Apparently, the method initially enforces a specific and rather unfamiliar structure on a group, which inhibits the production of ideas. As pointed out above, the method does, however, help to retain a more differentiated view of the issue in the long term in comparison with the control group.

Concluding, the group mapping intervention initially hampers the flow of ideas by introducing structure. However, the map assists policy makers in retaining their ideas and hence contributes to the relative rise in different aspects in comparison with the control group, both in terms of the longer term process as well as the policy product of that process.

Group mapping as accelerator

In Chapters 7 and 8, it was pointed out that (1) on the first day, one municipality of the control group failed to deliver most of the process architectures on time, and (2) on the second day two municipalities from the control group were still struggling with the policy table while the other municipalities in the experiment were already designing strategies. These results suggest that the policy-making process was accelerated by the mapping technique. The control group needed more time to walk through the process. There are a number of explanations for this acceleration.

Firstly, it may be the result of the intervention based on the oval-mapping technique. Eden and Ackermann (1998a: 303-304) have pointed out that the technique is used

2 Our participants tended to be rather cautious with producing ovals and sticking them on the wall. The number of ovals produced was on the whole rather small in comparison with the numbers Eden and Ackermann (1998a) obtained. There was a strong tendency to confer on ideas, and in various instances the participants handed their ovals to the facilitator who, subsequently, stuck them on the wall.

in situations where there is little time for a SODA-trajectory, which may take months. Oval mapping is used when a quick result is preferred.

Another explanation for the outcome is that group mapping based on the oval-mapping technique provides the participants with a procedure which assists participants' thinking. They are guided through the process. The facilitator and method provide a step-by-step approach on how to tackle the issue. Other ways of offering such a procedure might have obtained similar results.

Thirdly, as indicated in Chapter 6, the two groups were not identical. Two municipalities in the control group consisted of a number of civil servants working for a policy development unit. These participants were more analytical, more critical (of themselves), and more inclined to think holistically. They were independent in their thinking and expressed their doubts about each other's suggestions or characteristics of the game/simulation. The experimental group, on the other hand, consisted rather of doers. This difference in outlook between the groups might explain why the experimental group proceeded more quickly. The self-critical approach of the policy developers in the control group implied they were taking more time to reflect.

A fourth possible explanation which needs to be addressed is a possible difference in the support of the game facilitator who assisted the two groups throughout the game/simulation. On the first day, this support was less evident than on the second day when the participants worked with the policy table which proved to be a difficult instrument to use. On this day, the facilitator played a more active role in assisting the various municipalities. The level of assistance the facilitator provided was difficult to assess. It is possible that he gave the experimental group somewhat more assistance in developing the policy table.

In conclusion, a problem-structuring method such as group mapping based on the oval-mapping technique can contribute to an acceleration of the policy-making process. However, there are alternative means which may have a similar result, such as an alternative procedure, action-oriented policy makers, or a process facilitator.

Different results for the two days of BANS

In the previous section, another important result was pointed out: the difference in outcomes for the two days of the game/simulation. How can we explain the absence of a substantial effect in the two meetings, and presence of a long-term effect for the process architectures on the first day as opposed to a firm short-term effect on the second day?

A first possible explanation is the fact that on the first day the issue's complexity was smaller since on the second day the group concerned itself with one issue and was therefore larger in size: 14 participants compared with 3 or 4 on the

first day. Not only were there more participants and therefore probably more ideas - which raised cognitive complexity - but also more parties and hence more interests. Consequently, the issue on the second day was more social-politically and cognitively complex. Perhaps the method is only effective if issues have a certain minimum level of (cognitive) complexity. The effect decreased in the course of the day. This may be caused by the fact that participants started to work in separate groups. They designed different strategies for the policy goal of their choice: nature, economic prosperity, and welfare. This curtailed the contention among the participants.

A second explanation for the difference in effect for the two days may be the different focus of the two days itself. On the first day, the participants concentrated on process, and on the second day they focused on issue content. Policy actors are used to thinking in terms of issue content and finding solutions for the issue rather than considering process ideas. Hence, the assignment of the first day was more difficult for them. Furthermore, the oval-mapping technique was designed for structuring ideas on issue content rather than developing a process architecture for that issue.

Thirdly, there is possibly a learning effect. On the second day of the game/simulation, participants of the experimental group had had time to get accustomed to working with the ovals. Learning on their part may explain the difference in outcome for the two days. An additional argument, which is also relevant in this context, is the fact that, on the second day of BANS, the participants had had time to familiarize themselves with their new surroundings in the game/simulation. The challenges they met the first day were considerable and caused uncertainty and caution. All participants needed to familiarize themselves with their role, new surroundings, and the issues, but the experimental group additionally had to get accustomed to working with the ovals.

A fourth explanation for the pattern of an increasing effect on the first day with a peak on the start of the second day and a subsequent decrease in effect, is provided by our iterative model of the policy-making process. In Chapter 2, Figure 2.2, the policy-making process was presented as a composition of three streams of actions: problem structuring, policy development, and implementation. Problem structuring was seen as an activity which increases in importance in the first phases of the process and will subsequently partially give way to policy development and policy implementation. Problem structuring will thus become less important in later phases of the policy-making process when policy implementation becomes increasingly more prominent. Consequently, when the participants progressed further in policy

development (this was during the second part of second day of BANS), it became more difficult to retrieve an effect of our method.[3]

In conclusion, group mapping based on the oval-mapping technique had varying effects on the two days of the game/simulation. Four reasons were given which may explain this difference. From these, the following propositions can be deducted:

- Problem-structuring methods are more effective when used for tackling policy issues which involve more than 3 or 4 parties/interests.
- Group mapping based on the oval-mapping technique is predominantly effective in the period where problem-structuring activities coincide with an increasing level of policy development activities and a modest level of implementation activities. The effect of the intervention is most visible in the process architectures and at the start of the second round. When the selection of policy options increasingly dominates the policy-making process i.e., in the course of the second day, problem structuring becomes less prominent and, consequently, group mapping appears to becomes less effective.
- Group mapping based on the oval-mapping technique has little direct effect in trajectories which are aimed at designing a process architecture.

A difference between observation and survey results

Another striking result which emerged from the data presented in the previous chapters is the difference between the two data sets. The observation and survey results were quite often not in accordance with each other. How should one interpret this difference? The results for aspect differentiation are illustrative here. Even though this criterion was measured more quantitatively than the other criteria, the participants at times contradicted the findings from the observation transcripts. Apparently, people seem to be inclined to respond on impulse in such situations and express their feelings. Their subjective account of how they experienced a certain instrument for policy-making may differ from that of a relative outsider such as a researcher. The participants' assessment of the richness of ideas which came up in their meetings or in the policy plans did not always match sum-scores of the ideas counted on the basis of the observation transcripts. Since the observation protocol contained a checklist to standardize the data, a more intersubjective appreciation of the actions and events was realized. In addition, the researcher had more time to analyse, reflect, and check argumentations than the participants when they filled in the questionnaires. Hence, more value should probably be attributed to the

3 The effect of the intervention is initially limited, then it increases, and decreases again further on in the process.

observations and less to our survey outcomes. Surveys in which policy makers are asked to express their experience and satisfaction with a particular process or instrument are a commonly used measuring technique in policy-science research (cf. Bongers, 2000; Heyne, 2000). Our findings prompt a closer monitoring of the reliability of this measuring instrument. A satisfied customer who has expressed his appreciation for an intervention with a problem-structuring method may not necessarily have experienced any other change than that of his or her own feelings regarding a particular issue or instruments.

In conclusion, the difference between the observation and survey results makes apparent the value observations can have for evaluation research of policy instruments.

External versus internal facilitation

In the light pollution issue on the first day, the control group scored higher in some instances than the experimental group. This unexpected result can be attributed to the fact that the municipality teams 1 and 2 of this particular control group were dominated by three exceptionally skilled persons who had authority. They were effective process managers, and they were persuasive and skilled negotiators. They combined these traits with creativity: they had rich ideas concerning the issue. They also were people with a broad overview of the issue: they were holistic in their thinking.[4] Consensus seeking was another of their traits, for they focused consciously on involving other interests.

These observations indicate that a highly skilled person who steers both the cognitive and socio-political dimension of the issue can be at least as effective as an external facilitator who introduces a method. From this conclusion the following proposition is deducted:

- It may be equally effective for organizations to select amongst its staff a facilitator who is a good process manager, creative in this thinking, who balances interests, seeks consensus and thinks holistically.
  Alternatively, an external facilitator can form a team with an internal facilitator so that the experience of both positions can be combined (cf. Eden and Ackermann, 1998a).

4 Holistic thinking combined with good process management skills appears to benefit the quality of problem structuring.

9.5 Gaming/simulation as a research instrument

Gaming/simulation is a popular training instrument and a useful tool for organizational change (cf. De Caluwé, 1997), but it has a limited tradition as a tool for policy-science research.[5] Our research has been an explorative study of the use of gaming/simulation for research purposes. We used the game/simulation BANS in a quasi-experiment in which we tested a problem-structuring method. Generally, problem-structuring methods are evaluated through case descriptions (cf. Akkermans et al., 1993; Lane, 1993; Eden and Ackermann, 1998a). The intervention in a particular organization or issue is described, and the participants are asked for their opinion on the facilitated process either by means of questionnaires or interviews (Vennix, 1990; Bongers, 2000). In this type of research, the client's perception and hence satisfaction with the intervention plays an important role in measuring its effectiveness. However, in the previous section it was pointed out that observations can have an additional value to surveys regarding the policy makers' experience and satisfaction with a process or instrument.

Using a game/simulation has both methodological advantages and disadvantages. Firstly, BANS facilitated making observations. Real-life policy-making processes are much more difficult to record. Inter-organizational policy-making involves various parties and many formal and informal meetings over a long period. Besides, in many instances where methods like SODA are introduced, organizations may be reluctant to share (all) their thoughts with researchers. Our experience with BANS has shown that it is indeed possible to follow policy makers around and write down their actions and conversations in both formal and informal settings. It has thus been possible to follow, to a certain extent, the dynamics in the way various participants approached an issue, took position and tried to convince others of their perception.

Secondly, the game/simulation enabled us to present reasonably identical environments to groups of professionals, some of whom we assisted with group mapping based on the oval-mapping technique. The results of the experimental and control groups could thus be compared.

Thirdly, BANS offered the participants a clear structure: due to the steps of play, the assignments given to the participants to make a policy table and process architecture, and the preconceived documentation forms for these two policy

5 Vissers (1994) and Van der Meer (1983a) are among the few who used gaming/simulation for research purposes.

products, the data for the various municipalities could be compared more easily. They played an important role in measuring the six criteria.

There are also methodological disadvantages in using a game/simulation as a research environment.

First, the structure BANS provided can possibly account for the limited effect the method had on problem structuring. It has characteristics of a problem-structuring method. The various policy instruments which were built into the game/ simulation like the actor analyses, the sounding-board meetings, and the policy table, assisted the participants in structuring the issues. The steps-of-play, organizing the course of the day, also assisted the participants in bringing structure to their process. The fact that BANS entails a considerable level of structure implies that the structure the group mapping intervention can introduce might be less visible than it would have been in a less structured environment. A problem-structuring intervention is probably less effective in an environment where other structuring elements prevail. BANS was also presented to the municipalities as a course in interactive policy-making. Consequently, participants were probably inclined to pay positive attention to various interests, involving various actors, and to try to be sensitive to the needs of fellow policy makers. Hence, participants were already inclined to show some of the behaviours problem-structuring methods aim to evoke of their own accord.

Secondly, the external validity of BANS is not without problems. Although participants experienced the issues and roles as realistic, they did not behave realistically in all instances. Sometimes stereotypical images of policy situations were enlarged. On other occasions, participants found it difficult to remain involved in the game for various reasons, one of which was a sense of uncertainty. Furthermore, the level of structure in BANS left limited room for improvisation. As was pointed out in Chapter 4, this may have influenced the external validity of BANS negatively. Essential for cognitive mapping as Eden et al. (1983, 1998a) designed it is the notion of the idiosyncrasy of ideas about issues. A simulated issue is by definition less idiosyncratic for the participants than a policy issue they face in daily life. However, we have tried to transfer characteristics of real-life processes to the experiment with BANS, by simulating policy networks. In all municipalities, at least two non-governmental organizations did participate, and they did offer a different perspective from those of the municipality's representatives. Nevertheless, our policy network was not constructed around a particular issue, as a policy network normally is. Furthermore, the majority of the participants were civil servants working for the municipality. This distribution of representatives in the network probably differs from most real-life policy networks.

The issues and roles were considered realistic by the participants, but they were less deeply involved in the issues presented to them in BANS than they would have

been in real-life processes. 'It remains a game' one of them remarked. The fact that we carried out our quasi-experiment with groups of experienced professionals who, by and large, were used to working with each other implied that they did bring with them their own idiosyncratic perceptions of policy-making, of municipal organizations and relationships between civil servants, politicians, client organizations and citizens, and their set ways of interacting. This contributed to the external validity of the game/simulation. Furthermore, since the participants in both groups were experienced, they did bring into the game/simulation structuring skills: e.g., some used overheads or flip-overs (cf. Dörner, 1996: 192).

Summarizing, in this section the advantages and disadvantages of the role BANS played in our quasi-experiment were discussed. The structure it offered was a mixed blessing. It facilitated measurement of problem structuring but simultaneously made it more difficult to trace the effectiveness of a problem-structuring method, for BANS offered the players already considerable assistance with structuring. The results show that the added value of planned and facilitated structuring does exist. However, it is not easy to establish the effects empirically, and this study could only find a rather distributed picture of these effects.

9.6 Future research

Our quasi-experiment of problem structuring in inter-organizational policy networks has been an explorative study. Building a mature theory of problem structuring was not our intention. By exploring the workings of a problem-structuring method in a game/simulation we have tried to reconstruct with hindsight how problem structuring evolves and how the workings of a method can be assessed. Despite the methodological shortcomings, which in part emanated from the practical limitations brought upon us by time and financial means, the design did enable us to explore the use of gaming/simulation for policy research. It gave us some insights into the working of a problem-structuring method and the use of a game/simulation for policy and organization science research. The outcomes of our research raise new questions. Considerably more assessment of problem structuring and problem-structuring methods is needed. Longitudinal field research into problem-structuring interventions in participatory policy trajectories will increase our understanding of the meaning of problem-structuring methods. Field research could overcome some of the problems we faced with the use of a game/simulation as an experimental context. A comparative analysis could be made of one or more types of problem-structuring methods.

In combining experimental research with field studies, an effort can be made to integrate social psychological research findings on group performance with the field

insights in problem structuring within policy-making processes. A renewed assessment of the criteria should precede the development of the instrument. The assessment can be founded on a more interdisciplinary focus than the present studies. Our problem structuring criteria can serve as a starting-point for developing a joint measuring instrument. In Chapter 3, the six criteria were formulated on the basis of a review of the literature on problem structuring. Policy scientists and practitioners who work with problem-structuring methods point out a number of characteristics on which our six variables were based. Although the literature supports these criteria, the outcomes of our experiment are ground for reconsidering the relevance of the criteria.

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Appendix 1. Problem structuring in three issues

In Chapter 7, the results for the coffee shop issue were presented. This is one of four issues which the participants were confronted with on the first day of the game simulation. In this appendix, we will give an overview of the results for the other three issues: the housing issue, light pollution, and the new motorway, the A206. Finally, we will summarize and compare the results of the four issues of the first round of BANS.

1. The housing issue

1.1. Introducing the issue

The policy makers involved in the housing issue were presented with a twofold problem. On the one hand, there is an oversupply of classrooms as a result of a decline in the number of pupils. On the other hand, there are four organizations which need new accommodation: an institution for the mentally handicapped, a general social work organization, a youth centre, and an art society. As a possible alternative accommodation, the old glass factory is mentioned, which is situated on Transfer. This factory, which has been empty for a number of years, has been nominated to become an industrial monument. The sounding board was given the assignment to take an integral approach to the issue.

1.2 The results

The results for the housing issue are presented in Table 1. The observations on aspect differentiation show that, for the first sounding-board meeting, the control group produced the highest number of aspects. In the second sounding-board meeting, aspect differentiation was evidently higher for the experimental group. This is also the case for the process architecture.

The survey results suggest, for both sounding-board meetings and the process architecture, a slightly higher score for the experimental group. However, a repeated measures ANOVA for the two sounding boards indicate no main effects for time or treatment (the oval-mapping technique): time, $F(1,18) = 0.0$, $p = 0.93$; treatment, $F(1,18) = 2.0$, $p = 0.17$. Moreover, there is no significant interaction effect: $F(1,18) = 0.65$, $p = 0.43$. Thus, in the first sounding board, there is little difference between the groups and, although the experimental group appeared to have a richer understanding of the housing issue according to the survey results, this difference with the control group is not significant. A MANOVA for the process architectures which the groups made for this issue indicate a trend: $F(1,63) = 5.14$, $p = 0.03$ in favour of the experimental group.

Integration of aspects was clearly better in the experimental group than the control group for both sounding-board meetings and the process architecture. In the first sounding-board meeting two municipalities of the experimental group scored higher than those of the control group. For the second sounding-board meeting and process architectures, all three municipalities in the experimental group scored higher.

Table 1: The results for the housing issue

		observation results						**survey results: means and standard deviations**					
		control group			experim. group			control group			experim. group		
municipality		1	2	3	4	5	6	1	2	3	4	5	6
aspect differ.	sbm1	60[1]	80 *201*	61	45	66 *179*	68	2.8[3] *1.0*[4]	3.3 *1.2*	2.8 *0.5*	2.5 *1.3*	3.3 *0.5*	3.7 *0.6*
	sbm2	33	18 *75*	24	40	27 *112*	45	3.0 *0.8*	2.0 *0.0*	3.5 *0.7*	3.8 *0.5*	3.3 *1.0*	3.0 *1.0*
	pa	25	17 *56*	24	26	27 *87*	34	3.0 *0.7*	2.6 *0.6*	/	3.3 *0.7*	3.1 *0.9*	3.6 *0.9*
aspect integ.	sbm1	±	±	-	±	++	+	3.0 *0.0*	4.0 *0.0*	2.8 *1.0*	2.9 *1.4*	4.0 *0.0*	3.3 *0.6*
	sbm2	-	-	±	++	+	+	3.8 *0.5*	2.7 *1.2*	4.0 *0.0*	4.0 *0.0*	3.0 *0.7*	3.0 *1.0*
	pa	±	-	±	+	+	+	3.3 *0.8*	2.4 *0.6*	/	3.4 0.7	3.3 0.9	4.0 0.8
balan. interests	sbm1	±	+	+	±	+	+	2.8 *1.0*	3.3 *1.5*	2.8 *1.0*	3.0 *0.0*	3.0 *0.8*	2.7 *1.3*
	sbm2	±	-	+	+	+	±	3.3 *1.0*	2.3 *1.5*	4.0 *0.0*	3.3 *0.5*	3.5 *1.3*	2.3 *1.5*
	pa	±	±	±	+	+	±	3.0 *0.9*	2.6 *0.8*	/	3.2 *0.8*	3.2 *1.2*	3.5 *1.0*
partici.	sbm1	±	+	+	±	+	+	4.0 *0.0*	3.0 *1.0*	2.5 *1.0*	2.8 *1.3*	3.0 *0.8*	3.3 *1.5*
	sbm2	±	-	+	+	+	±	3.8 *0.5*	3.0 *1.0*	3.5 *0.7*	3.5 *0.6*	3.8 *0.5*	3.3 *1.5*
	pa	±	±	±	+	+	±	2.9 *0.9*	2.4 *0.9*	/	2.8 *1.3*	3.1 *1.3*	3.1 *1.2*
com.	sbm1	-	+	+	+	++	+	2.8 *1.7*	3.0 *1.0*	3.3 *1.3*	3.0 *0.8*	3.8 *1.0*	4.3 *0.3*
	sbm2	±	-	+	+	±	+	3.0 *0.8*	2.0 *0.0*	4.0 *0.0*	3.8 *0.5*	3.8 *1.0*	3.0 *1.7*
	pa	±	-	-	±	±	±	2.9 *0.8*	2.9 *0.9*	/	3.4 *0.9*	2.8 *1.0*	3.6 *1.0*
process manag.	sbm1	+	+	+	±	+	+	3.0 *1.2*	3.0 *1.0*	2.0 *0.0*	2.4 *0.5*	3.0 *0.8*	3.0 *0.0*
	sbm2	+	-	±	+	+	+	3.5 *0.6*	1.7 *1.2*	3.5 *0.7*	3.0 0.8	3.0 0.8	3.0 1.0
	pa	+	-	±	+	±	+	3.3 *0.5*	2.7 *0.9*	/	3.6 *0.9*	3.0 *1.1*	3.6 *0.8*

Legend: 1= number of aspects, 2 = total number of aspects for the group, 3 = mean, 4 = standard deviation

The survey results, except for the results for the process architecture, do not indicate a relevant difference between the groups. A repeated measures ANOVA for the two meetings indicates no significant main effect for time $F(1,18) = 0.18$, $p = 0.67$; or for treatment $F(1, 18) = 0.30$, $p = 0.59$. The interaction effect is also not significant: $F(1,18) = 0.32$, $p = 0.58$. A MANOVA for the survey results on how the process architectures integrated aspects shows a significant difference between the groups: $F(1,63) = 10.5$, $p = 0.002$. From Table 1 we can deduct that the experimental group scored higher.

The observation results indicate that interests were balanced equally well by the two groups during the first sounding-board meeting. For the second sounding-board meeting, the experimental group scored somewhat, but not significantly, higher. However, two of the process architectures of the experimental group did balance interests better than those of the control group.

Again, the survey results do not confirm this pattern. A repeated measures ANOVA for the participants' scores for how they perceive the balancing of interests in the sounding-board meetings shows that there is no significant effect for time $F(1,18) = 0.75$, $p = 0.39$ or for treatment $F(1,18) = 0.03$, $p = 0.88$. In addition, a interaction effect is also absent: $F(1,18) = 0.65$, $p = 0.80$. A MANOVA for the way interests are balanced by process architectures according to the participants shows a trend: $F(1,63) = 4.72$, $p = 0.03$ in favour of the experimental group (see means in Table 1).

For the participation, the observation scores again indicate that there is no difference between the two groups in the first meeting. For the second sounding-board meeting, one municipality from the experimental group does score higher. Furthermore, two of the process architectures from the experimental group scored higher than those of the control group.

There was no difference between the two groups' perception of the way they contributed to the meetings. Only for the process architecture did the experimental group score somewhat higher. A repeated measures ANOVA for the two meetings suggest no significant main effect of time $F(1,18) = 0.86$, $p = 0.37$ or of treatment $F(1,18) = 0.29$, $p = 0.55$. There is no significant treatment effect $F(1,18) = 0.86$, $p = 0.37$. A MANOVA for the survey results on the process architectures for this issue show no difference between the groups: $F(1,63) = 1.76$, $p = 0.19$.

Communication in the sounding board of the experimental group faired better in both meetings in only one of the municipalities: a difference too small to be significant. For the process architecture, the observation scores were low overall. However, two of the three municipalities from the experimental group did pay somewhat more attention to communication than the control group did.

A repeated measures ANOVA for the survey results on communication in the two sounding-board meetings showed no significant main effect for time $F(1,18) = 0.00$, $p = 0.78$, but a trend for treatment $F(1,18) = 6.5$, $p = 0.02$. There was no significant interaction effect: $F(1,18) = 0.08$, $p = 0.77$. In both meetings, the experimental group did not score significantly higher on communication than the control group (1th sbm: $T(1,20) = -1.35$, $p = 0.19$; and 2th sbm, $T(1,18) = -1,48$, $p = 0.16$. A MANOVA for the results on the process architectures also indicate for the product they made, an absence of a significant difference

between the two groups: $F(1,63) = 1.5, p = 0.23$.

Finally, the observation outcomes suggest no significant difference between the two groups in the way the process was managed in the first meeting. In the second sounding-board meeting however, the experimental group did score higher on process management (in two of the three municipalities). Furthermore, the experimental group also provided better preconditions for future process management in their process architecture (again, in two of the three municipalities).

The repeated measures ANOVA for the two meetings for process management confirm what Table 1 suggests: there is no significant main effect for time between the two groups: $F(1,18) = 0.30, p = 0.59$; nor is there a main effect for treatment: $F(1,18) = 2.88$, $p = 0.84$. An interaction effect is also absent $F(1,18) = 0.041$. $p = 0.85$. The way the groups' process architectures managed the future process - although suggesting a trend - did not differ significantly, according to the survey results: $F(1,63) = 3.49, p = 0.07$. As the observation data suggest, the experimental group also scored higher in the participants' own perceptions.

2 Problem structuring of the light pollution issue

2.1 Introducing the issue

The Society of Transfer, the industrial park situated on the westside of Beneveld, has designed a plan to increase the light intensity on their estate. There have been a number of burglaries. In addition to the need for more security, the safety of people working the night shift is also a reason why Transfer wants more lighting. However, the inhabitants of the neighbouring municipality, Calimus, have complained about sleeping disorders and other related health problems. Coincidently, Beneveld has been selected to engage in a pilot project to develop a new policy to reduce light pollution.

2.2 Results of the experiment for the light pollution issue

Table 2 gives an overview of both the observation and survey results for the light pollution issue. These outcomes will be discussed here briefly.

The observation results on aspect differentiation for the first sounding-board meeting show little difference between the two groups. In the second sounding-board meeting, the experimental group seems to have a somewhat richer understanding of the policy issue. For the process architectures, it is, however, the control group which demonstrates a richer understanding of the future process than the control group.

Table 2 Problem structuring according to 6 criteria in the light pollution issue

		observation results						**survey results**					
		control group			experim. group			control group			experim. group		
municipality		1	2	3	4	5	6	1	2	3	4	5	6
aspect differ.	sbm1	39	56 *164*	69	57	53 *166*	56	3.0 *1.7*	2.5 *1.3*	2.0 *0.8*	3.8 *0.5*	3.3 *0.5*	3.8 *1.0*
	sbm2	21	33 *78*	24	23	35 *85*	27	4.3 *0.5*	3.3 *1.3*	4.0 *0.0*	3.5 *0.6*	2.0 *0.0*	3.8 *1.0*
	pa	43	37 *107*	21	22	32 *85*	29	4.1 *0.3*	3.6 *1.0*	/	3.1 *1.2*	3.1 *1.0*	2.9 *0.9*
aspect integr.	sbm1	+	+	±	±	+	+	4.0 *0.0*	3.0 *1.4*	2.8 *0.5*	4.0 *0.8*	3.5 *0.6*	3.8 *0.5*
	sbm2	+	+	±	-	+	+	4.3 *0.5*	4.3 *1.0*	4.5 *0.7*	4.0 *0.8*	2.8 *1.2*	3.5 *0.6*
	pa	++	+	±	+	+	+	4.1 *0.5*	4.0 *1.0*	/	2.5 *1.3*	3.2 *1.0*	3.2 *0.7*
balanc. interests	sbm1	+	+	±	+	+	+	3.3 *1.2*	3.3 *1.5*	3.8 *1.0*	3.8 *0.5*	2.8 *1.5*	4.3 *0.5*
	sbm2	+	+	+	+	+	+	4.0 *0.0*	3.5 *0.6*	2.5 *2.1*	4.0 *0.0*	2.8 *1.5*	3.5 *0.6*
	pa	+	+	+	+	+	+	4.1 *0.5*	3.5 *1.2*	/	3.0 *1.1*	2.9 *1.0*	2.8 *0.9*
partici.	sbm1	+	+	+	+	±	±	4.0 *1.0*	3.8 *1.5*	2.8 *0.5*	3.5 *0.6*	3.0 *0.8*	3.3 *0.9*
	sbm2	+	±	+	+	±	+	3.5 *1.3*	4.0 *0.8*	3.0 *0.0*	3.5 *0.6*	3.3 *1.0*	3.5 *0.6*
	pa	+	++	+	±	+	+	3.6 *1.0*	3.6 *0.9*	/	3.3 *1.2*	3.1 *1.0*	3.2 *1.1*
com.	sbm1	+	+	+	-	±	±	4.0 *1.0*	2.8 *1.0*	3.5 *0.6*	3.8 *1.0*	2.5 *0.6*	4.0 *0.8*
	sbm2	±	+	+	±	-	+	4.3 *0.5*	4.8 *0.5*	4.5 *0.7*	4.3 *0.5*	2.8 *0.5*	4.3 *1.0*
	pa	±	±	+	-	±	±	3.5 *1.1*	3.4 *0.9*	/	2.9 *1.3*	2.6 *0.9*	2.9 *1.3*
process manag.	sbm1	++	+	±	+	+	+	4.0 *0.0*	3.0 *0.8*	2.8 *1.0*	3.3 *1.0*	2.5 *0.6*	3.8 *0.5*
	sbm2	+	+	+	±	+	+	4.0 *0.8*	4.5 *0.5*	4.0 *0.0*	3.5 *1.0*	3.3 *1.5*	3.8 *0.5*
	pa	++	+	±	-	+	+	3.4 *0.9*	3.6 *0.9*	/	3.0 *1.3*	3.1 *1.1*	2.8 *1.2*

Legend: 1= number of aspects, 2 = total number of aspects for the group, 3 = mean, 4 = standard deviation

The survey results are only partly in accordance with these findings. A repeated measures ANOVA for aspect differentiation in the two sounding boards shows that there is no main effect for time: $F(1,19) = 2.95$, $p = 0.10$. Neither is there a main effect for treatment: $F(1,19)= 0.37$, $p = 0.55$. There is however, a significant interaction effect: $F(1,19) = 14.3$, $p = 0.001$. This can be largely explained by the substantially higher score of the control group in the second meeting when compared with the first meeting. In the first sounding-board meeting the experimental group scores almost significantly higher: $T(1,15) = -2.7$, $p = 0.015$ (unequal variances). In the second sounding-board meeting, the control group scores higher, but not significantly: $T(1,19) = 0.023$, $p = 0.1$.

A MANOVA for the process architectures indicate a significant difference between the two groups: $F(1,63) = 14.2$, $p = 0.002$. It is the control group (see Table 2) which scores higher than the experimental group.

The observation results for the criterion 'aspect integration' suggest that there is no significant difference between the two groups for either sounding-board meetings or their process architectures.

A repeated measures ANOVA for the level of aspect integration - as perceived by the participants - in both sounding-board meetings indicate no significant main effect of time or treatment ($F(1,19) = 2.51$, $p = 0.13$, $F(1,19) = 0.44$, $p = 0.52$). However, there is a significant interaction effect: $F(1,19) = 8.7$, $p = 0.008$. This effect can be large ascribed to the increase in appreciation of the control group of the level of aspect integration between the first and second meeting. For the first meeting, there is no significant difference between the groups: $T(1,21) = -1.7$, $p = 0.11$, For the second meeting, there is trend for the control group: $T(1,20) = 2.38$, $p = 0.03$.

A MANOVA for the process architectures shows a significant difference between the groups: $F(1,63) = 23.9$, $p = 0.000$. The control group again scores higher than the experimental group.

Interests were, according to the observation outcome, almost equally well balanced by both groups in the two sound boards and as well as by the groups' process architectures.

A repeated measure ANOVA for the survey results on balancing interests in both sounding-board meetings shows no effect for time ($F(1,19) = 0.06$, $p = 0.8$), nor for treatment ($F(1,19) = 0.03$, $p = 0.8$, and there is also no significant interaction effect: $F(1,19) = 0.06$, $p = 0.81$.

A MANOVA for the process architectures does, however, suggest a significant difference in favour (see Table 7.14) of the control group: $F(1,63) = 15.4$, $p = 0.001$.

The observation results indicate that, contrary to our expectations, in the first sounding-board meeting, the control group participated more actively than the experimental group. In the second sounding-board meeting, the two teams were equally active. One of the three process architectures of the control group suggested a more active participation of various interests in comparison to those of the experimental group.

A repeated measures ANOVA for the criterion 'participation' in the two sounding-board meetings shows that there is no significant time effect ($F(1,19) = 0.14$, $p = 0.71$ and no effect for treatment ($F(1,19) = 1.12$, $p = 0.30$) Neither is there an interaction effect: $F(1,19) = 0.14$, $p = 0.71$. In both instances, the control group scores higher than the experimental group. A MANOVA for the process architectures suggests no significant difference between the two groups: $F(1,63) = 3.0$, $p = 0.09$.

Communication in the first sounding-board meeting was, according to the observation results, evidently better with the control group. This was the case for all three municipalities. For the second sounding-board meeting, only one of the three municipalities in the experimental group communicated better: a difference too small to be significant. The same result applies to the process architectures of the two groups.

A repeated measures ANOVA for the two sounding-board meetings shows a significant effect for time: $F(1,19) = 14.5$, $p = 0.001$, no effect for treatment: $F(1,19) = 0.84$, $p = 0.37$; and a trend for the interaction effect: $F = 5.2$, $p = 0.034$. This can be largely attributed to the higher score of the control group for communication in the second sounding-board meeting. In the first meeting, there is little difference between the two groups ($T(1,19) = -0.1$, $p = 0.87$). But there is trend that the control scored higher in the second meeting: $T(1,19) = 2.3$, $p = 0.03$.

A MANOVA for the process architectures indicates a trend in favour of the control group: $F(1,63) = 5.9$, $p = 0.06$. Summarizing, the survey results partly support the observation outcome.

Finally, the observation results for the sixth criterion 'process management'. For the two sounding boards, there seems to be no significant difference between the two groups. Two of the three process architectures of the control group do manage future processes better than those of the experimental group.

The survey results partly confirm the observation outcome. A repeated measures ANOVA for the two sounding-board meetings show a trend for time ($F(1,20) = 4.4$, $p = 0.05$, but there is no significant treatment effect ($F(1,20) = 2.50$, $p = 0.12$ and no significant interaction effect: $F(1,20) = 0.5$, $p = 0.47$. In both instances, the control group scored higher, albeit not significantly.

A MANOVA for the survey results on how the process architectures arranged future process management according to the participants indicates a trend in favour of the process architectures of the control group: $F(1,63) = 3.3$, $p = 0.08$. The survey results in the case of process management largely seem to underwrite the observation outcome.

3 Problem structuring of the A206 issue

3.1 Introducing the issue

The central government of the Netherlands has decided that a new motorway - the A206 -

will be constructed. It will run through the western part of the municipality of Beneveld. The municipality has been asked by the Ministry of Transport to decide upon the exact location of the road. The road can be built either 200 metres left or right of the mapped-out road the government has chosen. If the plan is unaltered, the construction of the road will cause serious damage to a park of natural and historical value. Placing the road 200 metres to the right will mean the loss of a fairly new sports complex, and it may cause noise pollution for the neighbourhood the Braak. In Beneveld, the sounding board on public works has been asked to look into the matter and assist in designing a process architecture for the issue.

3.2 The results of the experiment for the A206 issue

Table 3 presents the observation and survey results for the A206 issue. These results will again be briefly discussed for the six criteria.

According to the calculations which were based on the observation transcripts, the control group had a slightly richer understanding of the issue in the first sounding-board meeting than the experimental group. However, in the second meeting, and with their process architectures, the experimental group had an increasingly richer understanding of the issue in comparison to the control group.

A repeated measures ANOVA for the two sounding-board meetings show that there are no main effects for time or for treatment: $F(1,14) = 0.03$, $p = 0.86$; $F(1,14) = 0.21$, $p = 0.65$. Neither is there an interaction effect: $F(1,14) = 0.3$, $p = 0.61$. A MANOVA for the process architectures indicates that there is no significant difference between the two groups: $F(1,63) = 0.1$, $p = 0.78$.

The observation results for aspect integration show that, in the first sounding-board meeting, the two groups do not differ. In the second sound board meeting and the process architectures two of the three municipalities in the experimental group scored higher on aspect integration.

A repeated measures ANOVA for the survey results on aspect integration during the two meetings demonstrates that there are no main effects for time and for treatment and no interaction effect: $F(1,14) = 0.16$, $p = 0.70$, $F(1,14) = 0.22$, $p = 0.65$, $F(1,14) = 0.16$, $p = 0.70$ (respectively).

A MANOVA for the way the process architectures were perceived to integrate aspects shows that there is no difference of significance between the two groups: $F(1,63) = 1.1$, $p = 0.30$.

The observation results on the way interests were balanced in the two sounding boards and by the process architectures the groups designed indicate that there is a limited difference between the two groups.

Table 3. Results for the A206-issue (survey results are means and standard deviations)

		observation results						**survey results**					
		control group			experim. group			control group			experim. group		
municipality		1	2	3	4	5	6	1	2	3	4	5	6
aspect differ.	sbm1	54	49 *175*	72	37	60 168	71	3.7 *0.6*	3.0 *1.0*	3.7 *0.6*	2.3 *1.2*	4.0 *1.0*	3.0 *1.6*
	sbm2	18	27 *84*	39	20	36 *108*	52	4.3 *0.6*	3.5 *0.7*	2.0 *1.0*	4.0 0.0	3.3 1.2	3.7 1.2
	pa	21	23 *57*	13	39	27 *103*	38	3.2 *1.0*	4.0 *0.6*	/	3.9 *1.0*	3.6 *0.8*	3.6 *0.8*
aspect integ.	sbm1	+	+	+	±	+	+	3.3 *0.6*	3.3 *0.6*	4.0 *1.0*	2.0 *1.0*	4.0 *1.7*	3.0 *1.4*
	sbm2	±	+	-	+	+	+	4.0 *0.0*	4.0 *0.0*	2.7 *1.5*	4.0 *0.0*	2.3 *1.5*	4.3 *0.6*
	pa	-	±	±	±	+	++	3.2 *0.8*	3.8 *0.8*	/	3.6 *1.1*	3.8 *0.7*	3.8 *0.8*
balanc. interests	sbm1	±	+	+	±	+	+	3.0 *1.0*	3.0 *1.7*	3.7 *0.6*	3.0 *1.7*	3.3 *1.2*	3.5 *1.3*
	sbm2	+	+	±	+	+	+	3.7 *0.6*	4.0 *0.0*	2.3 *1.5*	4.0 *0.0*	2.0 *1.0*	4.0 *1.0*
	pa	+	+	+	++	+	+	3.2 *0.9*	4.0 *0.9*	/	3.9 *1.0*	3.3 *0.9*	3.1 *0.9*
partici.	sbm1	+	+	+	+	±	+	3.7 *0.6*	4.0 *1.0*	4.0 *0.0*	3.7 *1.2*	4.0 *1.0*	3.5 *1.3*
	sbm2	+	+	+	+	+	+	4.0 *0.0*	4.5 *0.7*	3.0 *1.0*	4.5 *0.7*	3.7 *1.2*	4.0 *1.0*
	pa	±	-	+	+	+	+	3.2 *1.2*	4.0 *0.9*	/	3.8 *1.2*	3.8 *0.7*	3.2 *1.2*
com.	sbm1	+	+	+	-	+	+	4.0 *1.0*	2.7 *0.6*	4.3 *0.6*	2.0 *0.0*	4.3 *0.6*	3.0 *1.3*
	sbm2	+	+	-	+	±	+	3.7 *0.6*	5.0 *0.0*	3.3 *1.5*	4.5 *0.7*	3.0 *1.0*	4.3 *0.6*
	pa	+	±	±	±	±	±	2.9 *1.0*	3.9 *0.8*	/	3.5 *1.3*	3.6 *0.8*	3.4 *0.9*
process manag.	sbm1	+	+	+	±	+	+	3.0 *0.0*	3.0 *0.0*	3.3 *0.6*	3.3 *0.6*	4.3 *0.6*	3.0 *1.2*
	sbm2	+	+	±	+	+	+	3.0 0.0	4.5 0.7	1.7 0.6	4.5 0.7	2.3 0.6	3.7 1.2
	pa	±	-	+	+	+	+	2.9 *0.8*	3.8 *0.9*	/	3.9 1.0	3.6 0.9	3.4 0.9

Legend: 1= number of aspects, 2 = total number of aspects for the group, 3 = mean, 4 = standard deviation

These results are confirmed by the survey results. A repeated measures ANOVA for the way interests were balanced during the two sounding-board meetings shows that there is no significant main effect for time ($F(1,14) = 0.08$, $p = 0.79$) and no main effect for treatment ($F(1,14) = 0.00$, $p = 1.0$). The interaction effect is not significant either: $F(1,14) = 0.0$, $p = 1.00$. There is no difference between the two groups and their scores for both meetings. A MANOVA for the process architectures shows no significant difference between the groups: $F(1,63) = 0.81$, $p = 0.37$.

According to the observation outcomes, the participation of the two groups did not differ significantly in the two sounding boards. However, two process architectures of the experimental group ensured better future participation of the interest groups in comparison with those of the control group.

A repeated measures MANOVA for the survey results from the two sounding boards indicates that there are no significant main effects for time and treatment ($F(1,14) = 0.00$, $p = 1.00$; $F(1,14) = 0.11$, $p = 0.75$). Neither is there a significant interaction effect: $F(1,14) = 0.3$, $p = 0.62$. A MANOVA for the process architectures shows that, contrary to what the observations suggest, the participants of both groups do not value participation differently: $F(1,63) = 0.0$, $p = 0.98$.

Communication during the two sounding-board meetings was, according to the observation results, of similar quality. Furthermore, the process architectures of the two groups also did not differ in the way they arranged future communication.

A repeated measures ANOVA for the survey results on communication in both sounding-board meetings indicates that there are no main effects for time or for treatment: $F(1,14) = 0.07$, $p = 0.78$. $F(1,14) = 0.00$, $p = 1.0$, respectively. Neither is there an interaction effect: $F(1,14) = 0.0$. $p = 1.0$. A MANOVA for the way communication was supported by the process architecture shows that there is little difference between the groups: $F(1,63) = 0.01$, $p = 0.91$. Here, the survey results support the observation outcome.

Finally, the observation results indicate that process management did not differ significantly between the two groups in the sounding-board meetings. Two process architectures of the experimental group did however, take better care of the way the future process would be managed than those of the control group.

A repeated measures ANOVA for process management in the two sounding-board meeting shows that there is no main effect for time and for treatment ($F(1,13) = 0.6$, $p = 0.44$; $F(1,13) = 2.4$, $p = 0.11$. In addition, there is no interaction effect either: $F(1,13) = 0.1$, $p = 0.92$. A MANOVA for process management within the process architectures shows no significant difference between the two groups: $F(1,63) = 0.95$, $p = 0.34$. This conclusion is not in accordance with the observation findings.

Appendix 2. General questionnaire (preceding the game/simulation)

1. What is your name?
2. What is your age? ☐ 20-35 ☐ 36-45 ☐ 46-55 ☐ 56-65
3. You are ☐ female ☐ male
4. For which type of organization do you work? .....
5. What is your position? .....
6. How long have you been employed in your present position?
   ☐ 0-3 jaar ☐ 4-8 jaar ☐ 9-12 jaar ☐ meer dan 12 jaar

The following questions concern the policy issues which you come across in your position.
An example of the answer categories for question 7:

1 = very small
2 = small
3 = reasonably large
4 = large
5 = very large

7. In these issues the number of parties tends to be:
   very small 1 2 3 4 5 very large
8. The number of interests involved tends to be:
   very small 1 2 3 4 5 very diverse
9. The knowledge these issues require, tends to be:
   not specialized 1 2 3 4 5 very specialized
10. The issues touch upon very fundamental questions and hence are very sweeping.
    fully disagree 1 2 3 4 5 fully agree
11. The issues are:
    not dynamic and familiar 1 2 3 4 5 dynamic and new
12. The way the issues are approached tends to be:
    not interactive 1 2 3 4 5 very interactive
13. Do you think, that the problems for which your municipality develops policy are being made sufficiently clear?
    no 1 2 3 4 5 yes
14. How well do you know the people who participate in the game/simulation?
    very poorly 1 2 3 4 5 very well
15. How do you judge the interests, the participants represent?
    very homogenous 1 2 3 4 5 very diverse
16. Did you ever have a personality conflict with one or several of the participants?
    never 1 2 3 4 5 often
17. Did you have differences of opinion concerning work content with one or several of the participants?
    never 1 2 3 4 5 often

Appendix 3. Evaluation first day of BANS

1. Which role did you play in the first round? .....
2. What was the issue you were involved in? .....
3. The content of the issue was:

very simple 1 2 3 4 5 very complex
Please, explain your answer:.....

4. The number of interests involved in the issue was:
very small 1 2 3 4 5 very diverse
Please, explain your answer:.....
5. The interests involved in the issue collided:
hardly 1 2 3 4 5 very strongly
Please, explain your answer:.....
6. To what extent where the parties in the discussion led by their own interests?
very little 1 2 3 4 5 very much
7. The role norms and values play in the issue was:
very small 1 2 3 4 5 very large
Please, explain your answer:.....
8. The stakeholder analysis helped me structuring the issue.
fully disagree 1 2 3 4 5 fully agree
9. The sounding board is a useful instrument for policy development
fully disagree 1 2 3 4 5 fully agree
10. The process architecture is a useful instrument for policy development
fully disagree 1 2 3 4 5 fully agree
11. Has the oval-mapping technique offered you better insight in the issue?
not at all 1 2 3 4 5 yes, a lot
12. The oval-mapping technique is a useful instrument for policy development.
fully disagree 1 2 3 4 5 fully agree
13. Thanks to the oval-mapping technique, mutual understanding was raised
fully disagree 1 2 3 4 5 fully agree
14. The oval-mapping technique reduced the contrast in interests.
fully disagree 1 2 3 4 5 fully agree

Appendix 4. Evaluation BANS second day

1. Which role in BANS did you play in round 1? .....
2. In which issue were you involved in, in this round? .....
3. The content of the issue was:
very simple 1 2 3 4 5 very complex
Please, explain your answer:.....
4. The number of interests involved in the issue was:
very small 1 2 3 4 5 very diverse
Please, explain your answer:.....
5. The interests involved in the issue conflicted:
very little 1 2 3 4 5 very strongly
Please, explain your answer:.....
6. To what extent where the parties in the discussion led by their own interests?
very little 1 2 3 4 5 very much
7. The role norms and values play in the issue were:
very small 1 2 3 4 5 very large
Please, explain your answer:.....
8. In the game/simulation six criteria were presented to you which are relevant for policy

development: indicate their relevance for policy development in your practice.
Aspect differentiation: the differentiation in ideas which are offered
unimportant 1 2 3 4 5 very important
Aspect integration: the logical clustering of ideas
unimportant 1 2 3 4 5 very important
balancing interests: the level in which different partial interests are taken into account
participation: the level in which parties actively take part
unimportant 1 2 3 4 5 very important
communication: the level in which parties listen and mutually understand to each other
unimportant 1 2 3 4 5 very important
process management: the level in which interaction leads to a positive results
unimportant 1 2 3 4 5 very important

9. The stakeholder analysis is a useful instrument for policy development.
fully disagree 1 2 3 4 5 fully agree
10. The policy table is a useful instrument for policy development
fully disagree 1 2 3 4 5 fully agree
11. Has the oval-mapping technique offered you better insight in the issue?
not at all 1 2 3 4 5 yes, a lot
12. The oval-mapping technique is a useful instrument for policy development.
fully disagree 1 2 3 4 5 fully agree
13. Thanks to the oval-mapping technique, mutual understanding was raised
fully disagree 1 2 3 4 5 fully agree
14. The oval-mapping technique reduced the contrast in interests.
fully disagree 1 2 3 4 5 fully agree
15. What do you think of the game/simulation?
not enjoyable 1 2 3 4 5 enjoyable
16. I found the first day of the game/simulation:
not instructive 1 2 3 4 5 very instructive
17. I found the second day of the game/simulation:
not instructive 1 2 3 4 5 very instructive
18. What was the most important you learned in the past two days?
.....
19. Did the game/simulation offer you sufficient possibilities to experiment with a more interactive style of policy making
Totally unsufficient 1 2 3 4 5 very sufficient
20. The facilitation of the game/simulation was:
very bad 1 2 3 4 5 very good
21. The evaluations in-between were:
not useful 1 2 3 4 5 very useful
22. The gaming material was:
very unaccessible 1 2 3 4 5 very accessible
23. What was unrealistic about BANS?
24. What was for you most valuable about BANS?
25. What is your most important point of criticism on the game/simulation?

Appendix 5/6. Evaluation criteria first/second sounding board meeting

1. In which issue were you involved? Housing coffee shops light pollution A206
2. What is your position?
3. Aspect differentiation: Are you satisfied with the differentiation in ideas which were mentioned about the process architecture in the sounding board meeting?
   very unsatisfied 1 2 3 4 5 very satisfied
4. Aspect integration: Are you satisfied with the way the various ideas were ordered?
   very unsatisfied 1 2 3 4 5 very satisfied
5. Balancing interests: Are you satisfied with the way the various partial interests got a chance in the meeting?
   very unsatisfied 1 2 3 4 5 very satisfied
6. Participation: How was your own contribution - in terms of energy, money or time - to the development of the process architecture during the sounding board meeting?
   not active 1 2 3 4 5 very active
7. Communication: To what extent did participants listen to and show understanding for each other?
   not at all 1 2 3 4 5 a lot
8. Process management: To what extent are you satisfied about the way in which the meeting was led?
   very unsatisfied 1 2 3 4 5 very satisfied

Appendix 7 Evaluation process architecture

(This questionnaire consisted of four identical list for the process architectures for all four issues.)

1. Aspect differentiaton: Are you satisfied about the differentiation in actions and aims the process architecture lists?
   very unsatisfied 1 2 3 4 5 very satisfied
2. Aspect integration: The sequence of steps the process architecture presents are coherent.
   totally disagree 1 2 3 4 5 totally agree
3. Balancing interest: Are you satisfied about the way in which the process architecture takes account of the various interests involved?
   very unsatisfied 1 2 3 4 5 very satisfied
4. Participation: To what extent will you support the process architecture in terms of for instance money, time or energy?
   not active 1 2 3 4 5 very active
5. Communication: Do you expect that as a result of the process architecture, the understanding between the parties will improve?
   not at all 1 2 3 4 5 tremendously
6. Process management: Is the way in which the process architecture arranges the interaction between the parties effective?
   not at all 1 2 3 4 5 highly

Appendix 8. Evaluation city meeting

1. What is your position?
2. Aspect differentiation: Are you satisfied about the differentiation in ideas regarding the light pollution policy which were put forward in the meeting?
   very unsatisfied 1 2 3 4 5 very satisfied
3. Aspect integration: Are you satisfied about the way in which the various ideas were ordered in the meeting?
   very unsatisfied 1 2 3 4 5 very satisfied
4. Balancing interests: Are you satisfied about the way your interests were considered in the meeting?
5. Participation: How was your own contribution - in terms of for example energy, money or time - to the meeting?
   not active 1 2 3 4 5 very active
6. Communication: To what extent did participants listen to and show understanding for each other?
   not at all 1 2 3 4 5 a lot
7. Process management: Are you satisfied about the way in which the meeting was led?
   very unsatisfied 1 2 3 4 5 very satisfied

Appendix 9. Evaluation questionnaire strategies

(This questionnaire consisted of three identical list for the strategies (maximum three) the participants designed.)

1. Aspect differentiaton: Are you satisfied about the differentiation in actions and aims the strategy lists?
   very unsatisfied 1 2 3 4 5 very satisfied
2. Aspect integration: The chosen options and aims form a coherent unity.
   totally disagree 1 2 3 4 5 totally agree
3. Balancing interest: Are you satisfied about the way in which the strategy takes account of the various interests involved?
   very unsatisfied 1 2 3 4 5 very satisfied
4. Participation: To what extent will you support the implemention of the strategy in terms of for instance money, time or energy?
5. Communication: Do you expect that as a result of the strategy, the understanding between the parties will improve?
   Not at all 1 2 3 4 5 tremendously

Appendix 10. Participants' perceptions on policy instruments

The participants taking part in our quasi-experiment were asked for their opinion of a number of policy instruments they worked with in the game/simulation. These results are briefly presented here. On a 1-5 scale they express there view of how the various instruments assisted problem structuring (stakeholder analyses) and policy making in general (sounding board, process architecture and policy table) (1 - fully disagree, 5 = fully agree). Furthermore, the participants were also asked whether the oval mapping technique contributed to a: more insight in the issue; b: the policy making process; c: a greater mutual understanding; c: reduced conflict of interests. All participants of both groups were reasonably positive about the contribution the process architecture and the sounding board made to the policy making process. The experimental and control group did not differ significantly in their appreciation of the these two instruments.
On the second day, the participants considered the other two instruments - the actor analysis and policy table - as more useful for policy making than the oval mapping technique. A paired T-test shows that experimental group values the actor analyses almost significantly higher than the oval mapping technique in terms of its contribution to policy making ($T(1,35) = 2.4$, $p = 0.02$). The policy table scores significantly higher ($T(1,35)$, $p = 0.005$).

	round 1	round 2
stakeholder analyses	36	39
souding board	35	
process architecture	39	
policy table		40
ovals & insight	35	36
ovals & policy making	37	35
ovals & mutual understaning	30	32
ovals & reducing conflicts	29	29

Appendix 11. Observation list

(Only the pages of the first two steps are shown: they are identical to those for the following steps of the game/simulation.)

step 1: orientation	actor 1	actor 2	actor 3	actor4
1. Who talks to whom? 2. Who takes the initiative? 3. Ideas 4. Who asks information 5. Emphasizes own interests (yes/somewhat/no) .....general interests? (yes/somewhat/no) 6. Are they listening yes/somewhat/no) 7. Attitude? Active/passive etc.				

(ibid.)

Step 2: Sounding Board Meeting

actor 1	actor 2	actor 3	actor 4	general

(ibid.)

	actor 1	actor 2	actor 3	actor 4
2. Talks a lot/average /a little				
3. Dominant: yes/somewhat/no				
4. Directs: a lot/average/ little				
5. Emphasizes own interest: yes/somewhat/no				
6. Emphasizes common interest: yes/ somewhat/no				
7. Listens? yes/somewhat/ no				
8. Attitude is? active/ indifferent/against the grain				

9. Who chairs the meeting formally?	
10 Who chairs the meeting informally?	
11. Was the meeting well structured?	Yes / somewhat / no
12. Did participants ask for information?	Yes / somewhat / no
13. Did participants understand each other?	Yes / somewhat / no
14. Did interests dominate the meeting?	Yes / somewhat / no
15. Describe the atmosphere in which the meeting took place: friendly/open/ enthusiastic/tame, passive, quarrelsome	
16. Did someone adopt ideas of another person?	
17. Were compromises decided upon? Describe these compromises	

Appendix 12. Data gathering and operationalization

12.1 Introduction

First, the way the data was collected is described. Apart from survey questionnaires, observations played an important role in the data collection. The way the rich material which the observation and survey data provided was analysed and condensed, is illustrated. Section 12.2 provides an overview of the operationalization of the six quality criteria in indicators and items. Finally, we will conclude with an brief evaluation of our approach.

12.1.1 Data collection

Two sets of data were collected with the game/simulation. Players filled in questionnaires during and after the game/simulation (see appendix 2-9). Observers filled in a questionnaire (see appendix 11) after the meetings they observed. Furthermore, they wrote down the conversations of the players during those meetings.

The observers were trained with the aid of a video which was developed for training communication techniques. It contained several scenes of meetings in which different topics were discussed and social-emotional relationships were depicted. The meetings on the video were analysed and scored by the observers with the aid of appendix 11. Subsequently, differences in the observation protocol were discussed in order to reach consensus. Some of the items in the observation questionnaire referred to behaviours such as 'mutual understanding' which are difficult to operationalize straightforwardly. The training was important in establishing a common understanding about the concepts the items introduced.

During the game runs, there were four observers, two of which had to be replaced for the last two runs. Those observers which took part in the first four runs were the first team and those taking part in the last two runs formed the second team. The experienced observers also took part in the training of the new observants. During the training the observers obtained similar scores for most items. However, in both teams, one observer scored somewhat differently on two of the items. In the first team training, the items on emphasizing personal interest and common interest were discussed extensively. In the training of the second team the level in which 'interests dominated the meeting' and the atmosphere of the meeting were addressed. Because each observer worked with different teams, no post-hoc interobserver reliability could be assessed.

12.1.2 Data analysis

The observation protocols which were written during the experiment (consisting of the observation questionnaire and the observation text) were first worked out by the observers and then discussed with the researcher and the observers in order to obtain a first diagnosis of the important events and characteristics of the runs. Subsequently, six extensive reports (report 1) (approximately 45 pages per run) were written containing the results of the observation questionnaire and an elaborate chronological summary of the protocol texts of the issues of the first day and the second day. On the basis of this report, a summary was

made of the similarities and differences in how the issues evolved in the six runs. This second report (report 2) - containing approximately 5-7 pages- summarized for the gamed policy issues: the most important themes which surfaced in the discussion on the issue; the interaction which evolved between the participants, and social-emotional characteristics which dominated the process (e.g., dispute or tension, or a very constructive approach). This report offered the researcher an informed understanding of the 6 (municipalities) x 4 (issues on the first day) + 6 (municipalities on the second day) = 30 cases which did both justice to the richness of the data and yet satisfied the need for conciseness required for providing the various cases with a basic identity. The researcher could thus develop a better understanding of the material. Our whole approach of data collection and analyses can be placed within the tradition which Glaser and Strauss (1967) have coined as 'grounded theory'. A priori assumptions only in part guided the analyses for they also are developed from the data through the identification of themes and concepts.

Finally, a third report (report 3) was written containing for every step of play, the observation text and the observation questionnaires in terms of the six criteria for problem structuring. Items were categorized according to the corresponding quality criteria. In addition, by means of cross-check, the observation text was also analysed for statements which corresponded with the quality criteria. The following section gives an overview of the different indicators and corresponding type of statements which were taken from the text.

In order to reduce the amount of data further, three measuring points were chosen over the day which corresponded with the most important steps-of-play in the game. For the first day these were the two sounding board meetings and the process architecture. The latter was a process plan the policy makers designed which specified a set of sequential actions, corresponding responsible actors and aims. It was the product the different groups of policy makers had worked on during the day. For the second day, the city and strategy meeting and the two policy products, policy table and strategies were chosen as measuring points. The policy table is an instrument which assists participants in structuring aspects in aims, options and decision areas. Participants are encouraged to choose the main aim of the policy and consider the most important options in each decision area. A decision area is a category identifying various alternative options. For instance in the light-pollution case, if safeguarding the environment is the main aim, within the decision area light intensity the option lower level of lux will be chosen as opposed to a higher level of lux. The policy table and strategies are policy outputs which were developed during the day. Our assumption is that improved problem structuring should result in a higher quality policy outcome.

For the specified measuring points the six criteria were assessed. Aspect differentiation and aspect integration were analysed with the aid of report 1 which provided a full account of the conversations (see 12.2 for the scoring categories). This report provided the most detailed information about the different ideas which surfaced and the way they were connected. In order to assess 'aspect differentiation' the number of different aspects were counted in both the observation text for the meetings, and in the policy products, i.e., process architecture and policy table.

The group maps developed in the experimental group served as a starting point for assessing 'aspect integration'. Aspect integration refers to the level in which the different aspects were linked in a logical and meaningful way. The observation text of each municipality in the control group was analysed and constructs were drawn and linked by the researcher on the basis of report 1. In this way the researcher constructed group maps for the control group which were then compared with those made by the experimental group.

For the scoring of 'balancing interests', 'participation', 'communication' and 'process management' report 3 was used. This report gives an overview per municipality of these four criteria. It contains the items from the observation questionnaires, and statements deduced from the observation text. Again, the meetings and policy products of all six municipalities were scored on the basis of the method which is presented in section 12.2.
The information in the protocol text which did not correspond with the chosen measuring points - e.g. the bilateral meetings which preceded the sounding board meetings - was used to provide a context - a background and history (cf. Eden and Ackermann, 1999) - for the meetings and policy products which were analysed. In order to understand certain developments in a policy process better it can be important to analyse the developments which preceded them. For instance, the antagonistic behaviour of a player in a sounding board meeting can be better understood when it can be traced to a disrespectful remark of the other players in a previous encounter. For each quality criterion there were several indicators. We combined the scores on each indicator into one score using a simple ordinal scale: ++, +, ±, −.

In order to check the consistency of the method, a cross-check was made comparing all the scores of a municipality per quality criterion. This face-validation procedure helped us in finding out whether the adding procedure did result in a valid ranking of the municipalities for the criterion.

12.2 Operationalization of the six criteria

12.2.1. Aspect differentiation
Aspect differentiation refers to the number of different ideas the group of policy makers expresses in organized meetings or in policy products, such as the process architecture, policy table and strategies.

Indicators

1. stakeholders:	number of different organizations, groups, institutions or functions. groups and functions can be part of a particular organization but are counted separately: e.g. mayor & alderman of economic affairs = 2; & council of aldermen and mayor = 3; & industry = 4;
2. process aspects:	different actions which can contribute to the design of actions directed at policy making which do not directly contribute to solving the policy issue: e.g., making rules = 1, time planning = 2, financing process = 3;
3. content aspects:	different aspects referring to issue substance and not to process

characteristics: e.g., intensify light = 1 and sleeping problems = 2 and invest in light = 3.

observation data

Measuring aspect differentiation in sounding board meeting 1 (cf. Chapter 7)

1. stakeholders & 2. process aspects & 3. content aspects: all three categories are added up

Measuring aspect differentiation in sounding board meeting 2/ process architecture

1. stakeholders & 2. process aspects are added up.

Measuring aspect differentiation in the city meeting (round 2)

1. aspects: all stakeholders, process and content aspects are calculated together, without making a distinction between these kinds of aspects

Measuring aspects in the policy table

1. number of different goals
2. number of different decision areas
3. number of different options

survey data

Measuring aspect differentiation in sounding board (sbm1, sbm2) /city meetings

1. stakeholders & 2. process aspects & 3. content aspects:

are you satisfied with the diversity of ideas mentioned regarding the process architecture (sbm1, sbm2)/ regarding the issue, i.e., the light pollution policy put forward in the city meeting. (1 = very unsatisfied, 2 = unsatisfied, 3 = not (un)satisfied, 4 = satisfied, 5 = very satisfied).

Measuring aspect differentiation in process architecture/strategies

2. process aspects & 3. content aspects

are you satisfied with the diversity in actions and aims the process architecture/strategy lists? (1 = very unsatisfied, 2 = unsatisfied, 3 = not (un)satisfied, 4 = satisfied, 5 = very satisfied).

12.2.2 Aspect integration

Aspect integration refers to meaningful linking of aspects into concepts and concepts into ideas and ideas into views of policy issues or policy processes. The connection policy makers make between aspects creates a clearer view of the issue/policy process. Hence, not all linking is inherently positive. The link should add information. For the scoring of the sounding board meetings and city meetings the group maps were used.

Indicators

1. logically linking: A link between aspects or concepts. Connecting totally unrelated

aspects such as a parking problem in a city centre and lacking youth facilities in suburbs is not a logical relationship.

2. chains of concepts: Concepts are linked sequentially into strings, which connect one to another which is in turn connected to another.

Observation data

Measuring aspect integration in the sounding board meetings

1 & 2: logical linking into chains of concepts

- one or more heads (ultimate goals policy makers wish to pursue, they contribute meaning)
- number of clusters of concepts
- size of clusters (small / medium / large)
- parallel vs sequential linking
- number of logically linked concepts of actions which contribute to the process architecture/ policy plan
- interlinking of clusters and linking to heads

poorly integrated aspects: no heads and/or, a variety of predominantly small clusters of concepts which are hardly linked (neither to a head nor to other concepts), or a reasonable percentage (approximately 20% or more) of unlinked concepts (orphans)

reasonably integrated aspects:- one or more heads & a number of clusters

- no heads & a few small/ medium size clusters, one small - more parallel than sequential linked - cluster of concepts contributing to the PA/policy

well integrated aspects: one or a few heads & few medium/large size clusters & a small or medium size - sequential linked - cluster which contributes to the PA/policy & some interlinking

very well integrated aspects: one or a few heads & few medium or large size clusters & a large size cluster which contributes to the process architecture/policy & considerable interlinking

Measuring aspect integration in the process architecture

1 & 2: logical linking into chains of concepts

- horizontal linking: specifying actions, corresponding responsible stakeholders and corresponding aims
- vertical linking:
  - each step of the process architecture contributes to the previous step (good sequencing)
  - number of steps

poorly integrated aspects: no horizontal linking, no vertical linking

reasonably integrated aspects: no horizontal linking & reasonable vertical linking, i.e., good

sequencing & few steps good horizontal linking & poor vertical linking i.e., poor sequencing & few or reasonable number of steps

well integrated aspects: good horizontal linking & good vertical linking, i.e., good sequencing & reasonable number of steps

very well integrated aspects: good horizontal linking & good vertical linking i.e., good sequencing & high number of steps

Measuring aspect integration in the policy table

1. logical linking — realization of one policy table which integrates all aspects in terms of aims, options and decision areas produced in the city meeting

poorly integrated aspects — aspects are integrated in more than one policy table

well integrated aspects — all aspects are integrated in one policy table

survey data

Measuring aspect integration in a sounding board/city meeting

2. logical linking — are you satisfied with the way the various ideas were ordered? (1 = very unsatisfied, 2 = unsatisfied, 3 = not (un)satisfied, 4 = satisfied, 5 = very satisfied)

Measuring aspect integration in the process architecture

1 & 2: logical linking in chains of aspects

The sequence of steps the process architecture presents are coherent. (1 = totally disagree, 2 = disagree, 3 = not (dis)agree, 4 = agree, 5 = totally agree)

Measuring aspect integration of the strategies

1. logical linking — The chosen options and aims form a coherent unity. (1 = totally disagree, 2 = disagree, 3 not (dis)agree, 4 = agree, 5 = totally agree)

12.2.3 Balancing interests

Balancing interests refers to level in which policy makers weigh the different interests which are involved in the issue.

Indicators

1. attention paid to personal interests
2. attention paid to common interests
3. contention of interests
4. willingness to consider other interests

poor balancing of interests: attention is paid to personal interests, little attention is paid to

common interests, unwillingness to consider other (or a particular) interests, strong contention of interests

reasonable balancing of interests: attention is paid to personal interests, reasonable attention is paid to common interest, there is some willingness to consider other interests, reasonable contention of interests

good balancing of interests: reasonable (or no) attention is paid to personal interests, reasonable/good attention is paid to common interest, there is considerable willingness to consider other interests, limited contention of interests

very good balancing of interests: reasonable (or no) attention is paid to personal interests, good attention is paid to common interests, there is a *strong* willingness to consider other interests, limited or no contention of interests

Measuring balancing interests in the meetings

1. attention paid to personal interests (item observation questionnaire)
   - the level in which someone advocates his/her personal interests (yes, reasonable, no)
2. attention paid to common interests (item observation questionnaire)
   - the level in which someone advocates common interests (yes, reasonable, no)
3. contention of interests
   - interests dominated the meeting (item observation questionnaire)
   - statements in the observation text indicating a strong defense of interest and a collision of interests
4. willingness to involve other interests
   - statements from the observation text indicating a stakeholder wants to or refuses to consider other interests

Measuring balancing interests in the process architecture

2. attention paid to common interest & 4. willingness to involve other interests
   - number of different interests (stakeholders)
   - time in trajectory when stakeholders become involved

Measuring balancing interests in the policy table

2. attention paid to common interest & 4. willingness to involve other interests
   - number of different interests (stakeholders)

survey results

Measuring balancing interests in the sounding board meetings

2. attention paid to common interest & 4. willingness to involve other interests

Are you satisfied with the way the various partial interests were

being paid attention to in the meeting? (1 = very unsatisfied, 2 = unsatisfied, 3 = not (un)satisfied, 4 = satisfied, 5 = very satisfied)

Measuring balancing interests in the city meeting

2. attention paid to common interest & 4. willingness to involve other interests

Are you satisfied with the way your interests were being paid attention to in the meeting? (1 = very unsatisfied, 2 = unsatisfied, 3 = not (un)satisfied, 4 = satisfied, 5 = very satisfied)

Measuring balancing interests in the process architecture/strategy

2. attention paid to common interest & 4. willingness to involve other interests

Are you satisfied about the way the process architecture/strategy takes account of the various interests that are involved? (1 = very unsatisfied, 2 = unsatisfied, 3 = not (un)satisfied, 4 = satisfied, 5 = very satisfied)

12.2.4 Participation

Participation refers to 'the level of active involvement' of participants involved in policy meetings and in the future process, as specified by policy products such as the process architecture or policy strategies.

Indicators

1. direct participation, i.e. talking, asking for clarification, contributing ideas.
2. willingness to invest means such as money, time, energy
3. pointing out the importance that 3(other) stakeholders should have the possibility to participate

low level of participation: direct participation is limited, stakeholders are reluctant to invest and do not ask for the active involvement of (other) stakeholders

reasonable level of participation: direct participation is reasonable, stakeholders are somewhat reluctant to invest in future policy and pay somewhat attention to the active involvement of other stakeholders

high level of participation: direct involvement is high, stakeholders want to invest in future policy, they pay attention to the active involvement of other stakeholders

very high level of participation: direct involvement of participants is high, they indicate they want to pay and invest otherwise considerable in future policy and are eager to invite (other) stakeholder to become very actively involved

observation data

Measuring participation in meetings

1. direct participation (items observation questionnaire)
   - amount of talking of individual participants (a lot/reasonable little)

- extent to which participants asked others for information (yes/somewhat/no)
- group attitude (e.g. active, reluctant)
- dominating participant(s)

2. willingness to invest means
   - statements from the observation text indicating a stakeholder will in future invest money, time or energy in the policy-making process
3. pointing out the importance of participation of other stakeholders
   - statements from the observation text indicating that other stakeholders should be actively involved in the process

Measuring participation in the process architecture

1. direct participation (not applicable)
2. willingness to invest means
   - type of involvement:
     - low involvement: more passive forms of participation such as receiving information through newsletters or in hearings
     - high involvement: more active forms of involvement, i.e., partaking in option generation of decision making
     - instance of involvement:- low involvement: late involvement
     - very high involvement: early involvement
3. involving other stakeholders actively
   - low involvement: involving only representatives of the municipality actively
   - high involvement: involving representatives of various stakeholders besides representatives of the municipality actively

survey data

Measuring participation in the sounding board/city meeting

1. direct participation & 2. willingness to invest means

   My contribution in terms of money, energy or time to the development of the process architecture / in the city meeting (1 = not active, 2 = little active, 3 = reasonably active, 4 = active, 5 = very active)

Measuring participation in the process architecture/strategies

2. willingness to invest means

   Extent to which you will support the process architecture/ the implementation of the strategy in terms of money, time or energy (1 = not active, 2 = little active, 3 = reasonably active, 4 = active, 5 = very active)

12.2.5 Communication

Communication is constructive interaction between policy makers who demonstrate openness and attention.

Indicators communication

1. listening, i.e. paying attention to what is being said:
   e.g. - let people finish speaking
   - ask questions of clarification
   - not reading or gazing in opposite direction
2. mutual understanding, i.e., demonstrating consideration for the position of the other one
3. friendly/positive atmosphere (i.e., no quarrels or fights, no personal attacks but smiling, and positively co-working people)

poor communication:
- participants do not listen or listen reasonable
- mutual understanding is poor
- the atmosphere is quarrelsome

reasonable communication:
- participants listen well or reasonable
- mutual understanding is reasonable
- atmosphere is not quarrelsome nor open/enthusiastic

good communication:
- participants listen well
- mutual understanding is reasonable or well
- the atmosphere is open or reasonably open/friendly

very good communication:
- participants listen well
- mutual understanding is well
- the atmosphere is open and very constructive

Observation data

Measuring communication in meetings

1. listening & 2. mutual understanding & 3. friendly/unfriendly atmosphere

Measuring future communication in the process architecture

The way 1. listening & 2. mutual understanding & 3. friendly/unfriendly atmosphere are arranged for the future:

- activities directed at providing information, realizing mutual understanding and/or support
- communication is explicitly addressed
- instances in which activities referred to here occur in sequential steps of the PA

survey results

Measuring communication in meetings

1. listening & 2. mutual understanding

To what extent did participants listen to and show understanding for each other? (1 = not at all, 2 = little, 3 = reasonable, 4 =

considerable, 5 = a lot)

Measuring future communication in the process architecture/strategies

2. mutual understanding Do you expect that as a result of the process architecture/strategies the understanding between the parties will improve? (1 = not at all, 2 = little, 3 = reasonable, 4 = considerable, 5 = a lot)

12.2.6 Process management

Process management refers to the way communication in the policy-making process is organized and structured

Indicators

1. leadership
2. structuring direct communication
3. structuring communication beyond meetings

poor process management: no leadership, poorly structured direct communication, no structuring of communication beyond meetings

reasonable process management: leadership, reasonably structured direct communication, no structuring of communication beyond meetings

good process management: leadership, good structured direct communication, limited structuring of communication beyond meetings

very good process management: leadership, good structured direct communication, good structuring of communication beyond meetings

Observation results

Measuring process management in the meetings

1. leadership (observation questionnaires: establishing who is leading and steering)
   - who is the formal leader
   - who is the informal leader
   - extent to which a participant steers (little, somewhat, a lot)

2. structuring direct communication
   - the meeting was structured (yes, somewhat, no) (observation questionnaires)
   - statements indicating that the meeting was organized and that the leader:
     e.g. - made sure all participant got their turn;
     - summarized the discussion
     - payed attention to the aim of the meeting
     - introduced ideas to keep the communication going
     - thanked people for their contribution

3. structuring communication beyond meetings
   - statements indicating that the leader asked participants to inform their rank and file and

thus manage boundaries (cf. Gray and Wood, 1991)

Measuring process management in the process architecture

1. leadership
   - responsibility for different actions is specified

2. structuring policy making & 3. directly and beyond meetings
   - informing relevant actors
   - managing boundaries
   - arranging coordination between actions
   - promoting support

survey data

Measuring process management in the meetings

1. leadership & 2. structuring policy making directly in meeting

   To what extent are you satisfied about the way in which the meeting was led? (1 = very unsatisfied, 2 = unsatisfied, 3 = not (un)satisfied, 4 = satisfied, 5 = very satisfied)

Measuring process management in the process architecture

2. structuring policy making directly in the meeting

   Is the way in which the process architecture arranges the interaction between the parties effective? (1 = very unsatisfied, 2 = unsatisfied, 3 = not (un)satisfied, 4 = satisfied, 5 = very satisfied)

2.3 Comments

The observation protocols provided a rich insight into the policy-making processes which evolved around the issues we studied. The training of the observers and the fact that the observation team conferred during and after the runs contributed to the reliability and validity of the data. Although the observation text was not an exact representation of every word spoken in the game/simulation, it did provide a good overview of the different ideas which emerged and social-political and normative characteristics of the interactions.

On the whole more credit was given to the observation data in comparison with the survey data. The participants had little time to reflect upon the questionnaires which they answered during the game/simulation mostly on impulse. The data show that a considerable number of participants differentiated little between the criteria while scoring for instance the process architecture. Most importantly, the counting of aspects in the observation text demonstrated that the way participants perceived aspect differentiation was not in accordance with the figures which emerged from the researcher's calculation of aspect differentiation.

There are a number of lessons we learned from our research method. The observations were very demanding. The observers had to pay attention to a lot of variables and were really worn out at the end of the day. In future a less ambitious observation scheme would be beneficial for the observers' working conditions.

Two observers per meeting would benefit the reliability and the validity of the data. But the project was already very costly as it was. A lot of working hours were needed for training the observers/facilitators, for the sessions with the game/simulation and for working out the observation protocol. Furthermore, there were substantial additional costs because the runs were on locations across the country and lasted two days. However, a choice for more observers would have interfered with the game/simulation' intention to bring to life real policy-making processes.

Samenvatting

Participatieve beleidsvorming mag zich verheugen in een groeiende belangstelling van beleidsmakers en wetenschappers. Sommigen zien in deze benadering een mogelijkheid om het democratisch bestel nieuw leven in te blazen en de burger nieuw vertrouwen te laten krijgen in overheid en politiek. Een andere reden om voor een participatief beleidsvormingstraject te kiezen is het feit dat de verschillende partijen die belang hebben bij een beleidskwestie, belangrijke kennisdragers kunnen zijn. Beleidskwesties kunnen erg complex zijn, zeker als veel belangen en partijen erbij betrokken zijn. Er zijn verschillende methoden ontwikkeld die beogen beleidsmakers te ondersteunen bij het in kaart brengen van complexe beleidskwesties. Deze exploratieve studie probeert een bijdrage te leveren aan het debat over participatieve beleidsvorming rondom complexe kwesties en de betekenis die probleemstructureringsmethoden hierin kunnen spelen. Hiertoe is een drietal onderzoeksvragen geformuleerd in hoofdstuk 1. (1.) Op welke wijze kan de kwaliteit van probleemstructurering in inter-organisationele beleidsnetwerken empirisch worden vastgesteld? (2.) Welke bijdrage leveren probleemstructureringsmethoden aan de kwaliteit van probleemstructurering in beleidsnetwerken? (3.) Hoe kan een spelsimulatie worden gebruikt voor het bestuderen van probleemstructurering in beleidsnetwerken?

Uitgangspunt van de studie is een sociaal-constructivistische benadering van beleidskwesties. Daarbij is een onderscheid gemaakt tussen drie dimensies van complexiteit (zie hoofdstuk. 2). Cognitieve complexiteit verwijst naar de hoeveelheid en aard van de informatie die nodig is om de kwestie te begrijpen. Cognitief complexe kwesties kenmerken zich door een veelheid van variabelen waarover onduidelijkheid bestaat en die op ondoorzichtige wijze met elkaar verbonden zijn. Sociaal-politieke complexiteit verwijst naar het aantal verschillende partijen en de mate van belangentegenstelling die een kwestie met zich mee brengt. Normatieve complexiteit heeft betrekking op de controverse tussen de achterliggende normen en waarden van de beleidsmakers die betrokken zijn bij de kwestie. Een beleidskwestie kan door één of meerdere van deze dimensies worden gedomineerd. De participatieve beleidvormings-trajecten die zich rondom dit soort kwesties ontwikkelen kunnen worden ontleed in een drietal stromen van activiteiten: probleemstructurering, beleidsontwikkeling en implementatie. Was lange tijd een fasebenadering - waarin deze stromen elkaar sequentieel in de tijd volgden - gangbaar in de bestuurskunde, hier wordt uitgegaan van een zekere parallelliteit van activiteiten en een cyclisch proces. Probleem structurering betreft al die activiteiten en interacties die gericht zijn op het signaleren, zoeken, selecteren en bouwen van aspecten van een beleidskwestie en die beogen transparantie en orde te realiseren.

In hoofdstuk 3 wordt een vijftal probleemstructureringsmethoden besproken:

Group Model Building, Soft Systems Methodologie, Strategic Option Development and Analysis (SODA), COMPRAM, en SAST. Deze methoden hebben een interdisciplinaïre achtergrond en hanteren een participatieve aanpak van beleidskwesties waarbij diverse belanghebbenden worden betrokken. Een ander kenmerk is dat ze gericht zijn op het bouwen van een model of schema. Vanwege de inzichtelijkheid van SODA, én het feit dat het goed aansluit bij de wijze waarop mensen zelf problemen verwoorden, is een op deze methode gebaseerde interventie nader onderzocht. Het hoofdstuk besluit met zes criteria - deze corresponderen met de drie eerdergenoemde dimensies van complexiteit - aan de hand waarvan de kwaliteit van probleemstructurering in een beleidsproces kan worden bepaald. *Aspectdifferentiatie* verwijst naar het aantal verschillende ideeën. *Aspectintegratie* betreft de wijze waarop deze ideeën op een logisch aan elkaar gekoppeld worden. *Belangenafweging* betreft de wijze waarop de diverse belangen van organisaties of groepen die betrokken zijn bij een kwestie worden gewogen. *Participatie* verwijst naar de mate waarin betrokken beleidsmakers tijd, energie en geld investeren in het proces. Het criterium *communicatie* heeft betrekking op de mate waarin beleidsmakers naar elkaar luisteren en wederzijds begrip tonen. Het zesde criterium, *belangenafweging,* heeft betrekking op de manier waarop de communicatie tussen de actoren georganiseerd wordt.

Hoe een probleemstructureringsmethode deze zes kwaliteitscriteria beïnvloedt is gemeten met behulp van een spelsimulatie (zie hoofdstuk 4). Deze spelsimulatie BANS (Beleidsadviseur nieuwe stijl) werd ingezet als een quasi-experimentele omgeving. BANS simuleert beleidsvorming in een gemeente en duurt twee dagen. Op de eerste dag buigen de veertien spelers (wethouders, ambtenaren, een buurgemeente, een industriepark en een welzijnskoepel) zich over vier beleidskwesties waarvoor zij een procesarchitectuur dienen te ontwikkelen. Op de tweede dag krijgen de spelers te maken met een beleidskwestie waarvoor een aantal strategieën ontwikkeld dienen te worden.

Het experiment was een 'post-test only design'. Zes gemeenten deden eraan mee. De teams bestonden naast ambtenaren, en soms ook wethouders, uit vier vertegenwoordigers van profit en non-profit organisaties uit het gemeentelijk netwerk. Drie gemeenten werden door vier facilitators ondersteund met een techniek die ontleend is aan SODA, de 'oval mapping' techniek van Eden et al. (1979, 1983, 1998) (experimentele groep). De andere drie gemeenten in de controlegroep werden niet door de methode ondersteund. Met behulp van vragenlijsten en observaties werden gegevens verzameld tijdens de zes runs.

In hoofdstuk 5 wordt een uitgebreidere beschrijving gegeven van SODA en de stimulus die gebaseerd is op de 'oval mapping' techniek, een onderdeel van de SODA-methode. Kern van deze benadering is dat ideeën van mensen via een soort van doel-middel ketens expliciet gemaakt worden. Wanneer een 'plattegrond' van de gedachten van een individuele beleidsmaker of manager wordt getekend, dan wordt dit aangeduid

als een 'cognitive map'. In sommige SODA-trajecten worden eerst door middel van interviewronden met sleutelpersonen cognitieve kaarten gemaakt. Vervolgens maakt de facilitator één groepskaart die in de groep wordt besproken. De kaart wordt aangepast tijdens een uitvoerig onderhandelingsproces. Wanneer er onvoldoende tijd en/of financiële middelen zijn worden er geen individuele kaarten gemaakt, maar wordt direct gestart met het bouwen van een groepskaart. Dat kan op verschillende manieren onder meer door de groep ideeën te laten opschrijven op ovalen kaartjes die direct op een muur worden opgeplakt. Een vraag die op de muur geschreven is, daagt de groep uit na te denken over een bepaalde kwestie. De ideeën worden vervolgens gestructureerd. Deze 'oval map-ping' techniek kent idealiter een cyclisch proces van ideeën genereren en structuren en weer opnieuw ideeën genereren. De interventie in de spelsimulatie bestond echter grotendeels uit één cyclus van ideeën genereren en structureren.

Hoofdstuk 6 geeft een beschouwing van de experimentele - en controlegroep die op een aantal kenmerken van elkaar verschilden. De controlegroep bestond uit grotere gemeenten en veel vertegenwoordigers van strategieafdelingen van deze gemeenten. Naast de onderzoeksgroepen geeft hoofdstuk 6 ook een overzicht van de ontwikkelingen in het spel tijdens één van de zes runs. Hiermee biedt dit hoofdstuk een kader voor de twee volgende hoofdstukken die voor elk kwaliteitscriterium een overzicht geven van de observatie en survey resultaten voor respectievelijk de coffeeshopkwestie - een van de vier beleidskwesties - van dag 1 (hfd 7) en de lichthinderkwestie, waarvoor op dag 2 beleid ontwikkeld wordt (hfd 8). In hoofdstuk 9 worden de conclusies gepresenteerd die hier kort worden weergegeven. Er wordt een onderscheid gemaakt tussen een korte- en lange-termijneffect van de interventie. De korte termijn verwijst naar de bijeenkomsten in het eerste dagdeel waarin de methode werd geïntroduceerd. Bijeenkomsten midden op de dag en plannen die halverwege of op het einde van de dag worden gepresenteerd, zijn als lange-termijn resultaten aangeduid.

De interventie had op de korte termijn een negatief effect op *aspectdifferentiatie*. De experimentele groep had in vier van de vijf kwesties een minder rijk beeld van de kwestie dan de controlegroep. Op langere termijn had de experimentele groep echter een rijker beeld. De groepskaart lijkt deelnemers te ondersteunen in het vasthouden van ideeën. Er is een positief effect van de methodische aanpak via de 'mapping' techniek op de wijze waarop ideeën worden geïntegreerd (*aspectintegratie*). Dat geldt voor zowel de korte termijn als de langere termijn. Dankzij het vroegtijdig zichtbaar koppelen van ideeën treedt er als het ware een soort versnelling op. Wat *belangenafweging* betreft zijn de resultaten tamelijk ambigu. Er is een lange-termijneffect voor twee kwesties op de eerste dag en een kort-termijneffect voor het beleidsvormingsproces van de tweede dag. Wat *participatie* betreft is er alleen op de tweede dag een korte-termijn resultaat en voor beide dagen een lange-termijneffect wat

de plannen betreft in vier van de vijf kwesties. De verschillen in de mate waarin beide groepen een actieve bijdrage leveren aan het proces zijn redelijk bescheiden. Het effect van de interventie op '*communicatie*' is gering. Slechts in één kwestie is er een effect op de proces architectuur op het einde van dag 1. Op dag 2 is er een korte-termijneffect maar halverwege de dag is de communicatie in de controlegroep juist beter. Ook voor *procesmanagement* zijn de resultaten bescheiden. In twee kwesties is er voor de proces architectuur (dag 1) een effect en voor dag 2 is er alleen sprake van een korte-termijneffect.

De interventie die gebaseerd is op de 'oval mapping' techniek heeft minder effect dan in eerste instantie was verwacht. Het effect is het sterkst voor aspectintegratie gevolgd door aspectdifferentiatie. Er is een bescheiden effect voor participatie en procesmanagement en in mindere mate voor belangenafweging. De techniek lijkt vooral de cognitieve complexiteit van een kwestie te beïnvloeden en minder de sociaal-politieke en normatieve complexiteit. Informatie wordt wel gedeeld door participanten en de interactie wordt door de groepskaart wel gestuurd, maar zij lijken zich niet echt mede-eigenaar te voelen van de kaart.

Opvallend is verder dat de interventie in eerste instantie een negatief effect heeft op de verscheidenheid aan ideeën die naar voren worden gebracht. Dit effect is zichtbaar op zowel de eerste dag - waarop de techniek meer als een brainstorm-activiteit is geïntroduceerd - als ook op de twee dag. De tweede dag lijkt meer op de nominale-groepsaanpak. Het werken volgens een bepaalde structuur lijkt in eerste instantie mensen te blokkeren in hun denken, maar het draagt er wel toe bij dat op de langere termijn mensen ideeën beter vasthouden dan zij die niet met de 'mapping' techniek of methode ondersteund worden. De groepskaart lijkt te fungeren als een soort extern geheugen.

Een aantal gemeenten van de controle groep slaagde er niet in op de afgesproken tijd een plan te presenteren. Terwijl zij nog druk bezig waren met het ontwerpen van een proces architectuur of beleidstabel, waren collega's van de experimentele groep al klaar. De 'mapping' techniek lijkt het beleidsvormingsproces te versnellen. Er zijn evenwel alternatieve verklaringen mogelijk. De techniek biedt participanten een structuur. Wellicht is het feit dat participanten een procedure kregen aangereikt - en niet de techniek als zodanig - de reden waarom er sprake is van een versnellingseffect. Een andere mogelijke verklaring is het feit dat de twee groepen verschilden. De controle groep bestond uit mensen die vanuit hun functie eerder geneigd zijn holistisch te denken. In deze groep werd analytischer en ook kritischer nagedacht terwijl in de experimentele groep meer doeners vertegenwoordigd waren. Ook de invloed die de facilitator heeft gehad op het proces zou een verklaring kunnen zijn. Het valt niet uit de sluiten dat de facilitator de experimentele groep op de tweede dag sterk heeft ondersteund. De exacte ondersteuning kon niet precies worden vastgesteld.

Hierboven is al een indicatie gegeven van het verschil in het effect van de 'mapping' techniek voor beide speldagen. Op de eerste dag is het effect vooral zichtbaar in de te produceren procesarchitectuur, terwijl de tweede dag een duidelijk korte-termijneffect voor belangenafweging, participatie, communicatie en proces-management en een lange-termijneffect voor aspectdifferentiatie, aspectintegratie en participatie laat zien. Ook voor deze resultaten zijn verschillende verklaringen mogelijk. De kwesties op de eerste dag verschilden in cognitieve en sociaal-politieke complexiteit van de kwestie van dag 2. Op dag 1 waren bij iedere kwestie maar drie of vier participanten direct betrokken, terwijl op dag 2 alle 14 spelers zich bogen over één kwestie. Het aantal belangen en partijen evenals de hoeveelheid informatie verschilde als gevolg daarvan. Wellicht is een zekere mate van complexiteit noodzakelijk wil de techniek effectief zijn. Een tweede reden is het verschil in oriëntatie tussen de twee speldagen. Op de eerste dag bogen de beleidsmakers zich over het proces en op de tweede dag gingen ze echt aan de slag met het maken van beleid voor de kwestie. Deze scheiding tussen proces en inhoud en het denken over proces was voor de participanten lastig. Bovendien wordt de oorspronkelijke ovalen techniek vooral gebruikt voor het in kaart brengen van de inhoud van kwesties. Ook kan niet uitgesloten worden dat er sprake is geweest van een leereffect. De deelnemers waren op de tweede dag gewend aan hun nieuwe omgeving en hadden al ervaring met de techniek. Dit kan een verklaring zijn voor het korte-termijneffect van dag 2. Een vierde verklaringsgrond is het feit dat probleem-structurering in belang toeneemt in de eerste fasen van het beleidsvormingsproces en na verloop van tijd in omvang afneemt. Een methode of techniek die beoogt de kwaliteit van probleemstructuring te verbeteren, zal dus eerst een toenemend effect laten zien en daarna een dalend effect. Deze golfbeweging is inderdaad enigszins in de resultaten terug te vinden.

Opvallend is dat de meetresultaten verkregen via de observaties nogal eens verschilden van die van de vragenlijst. Op basis van de resultaten voor het criterium aspectdifferentiatie is er voor gekozen de observaties als meer betrouwbaar te zien. De mate van aspectdifferentiatie is voor de observatieprotocollen vastgesteld door verschillende ideeën van participanten te tellen. De resultaten van deze meting waren soms in tegenspraak met het oordeel van beleidsmakers die zelf veel positiever of negatiever oordeelden over de eigen ideeënrijkheid. Ook het feit dat de analyses van de observatieresultaten een veel uitgebreider afwegingsproces inhield dan het oordeel-vormingsproces van de beleidsmakers is reden geweest meer waarde toe te kennen aan de observatieresultaten. Het is de vraag of vragenlijsten die tevredenheid meten over een bepaald beleidsinstrument en/of interventie, wel altijd even betrouwbaar zijn en of ze inderdaad iets meer meten dan tevredenheid van participanten, bijvoorbeeld een daadwerkelijke verandering in de beleidspraktijk.

Opmerkelijk is het feit dat in één van de kwesties op dag 1 de controlegroep beter

presteerde dan de experimentele groep. In deze groep waren een paar beleidsmakers actief die duidelijk ervaren procesmanagers waren en over goede onderhandelings- of sociale vaardigheden beschikten.

In dit onderzoek speelde de spelsimulatie een sleutelrol. BANS stelde ons in staat een beleidsvormingsproces via observaties op de voet te volgen. In de werkelijkheid zou dat niet op deze wijze mogelijk zijn geweest, omdat veel interacties die van belang zijn voor dit soort processen zich gelijktijdig of op onbereikbare plaatsen afspelen. Bovendien gaat het bij trajecten in organisaties die ondersteund worden via methoden als SODA niet zelden om vertrouwelijke zaken die organisaties niet graag aan de openbaarheid prijsgeven. Een spelsimulatie maakt het mogelijk mensen te volgen en hun gedrag en communicatie vast te leggen. Bovendien biedt het groepen spelers vrijwel identieke omstandigheden waardoor het mogelijk werd een experiment uit te voeren. Zo kon één groep worden ondersteund met de 'mapping' techniek, en hun acties en plannen worden vergeleken met die van een controlegroep. Een derde voordeel bood de structuur van BANS. De spelstappen en de instrumenten zoals de procesarchitectuur en de beleidstabel maakten het mogelijk om het proces en product van de beleidsprocessen met elkaar te vergelijken. Tegelijkertijd was de rijkheid aan structuur ook een nadeel. Het valt niet uit te sluiten dat het bescheiden effect van de interventie deels verklaard kan worden door het feit dat de deelnemers door de structuurelementen van het spel zelf ook ondersteund werden in het beleidsproces. Bovendien werd BANS aan de gemeenten aangeboden als een training in interactieve beleidsvorming. Participanten waren daarom waarschijnlijk al meer genegen andere belangen in ogenschouw te nemen en partijen actiever te betrekken. Probleemstructureringsmethoden die mede dit soort gedrag proberen te bewerkstelligen kunnen dan ook minder effect sorteren.

Een laatste nadeel is het feit dat een gesimuleerde beleidskwestie niet hetzelfde is als een echte beleidskwestie in de praktijk. Voor de spelers waren de kwesties minder idiosyncratisch dan de kwesties uit de eigen praktijk. Toch vonden de spelers de rollen en kwesties realistisch. De wijze waarop het spel is ontworpen en het feit dat het spel gespeeld werd met teams van beleidsmakers en vertegenwoordigers van profit en non-profit organisaties droeg bij aan de externe validiteit van de spelsimulatie.

De resultaten van dit onderzoek roepen nieuwe vragen op over probleem-structurering. Om deze vragen te beantwoorden is longitudinaal en vergelijkend veldonderzoek naar probleem-structureringsinterventies gewenst. Dit type onderzoek kan ons meer inzicht verschaffen in de betekenis van dit soort methoden. Door veldonderzoek te combineren met experimenten kan sociaal-psychologisch onderzoek naar het functioneren van groepen beter worden geïntegreerd in een multi-disciplinaire aanpak. De door ons ontwikkelde kwaliteitscriteria kunnen ook in dergelijk onderzoek van nut zijn. Op onderdelen is enige aanpassing wellicht wenselijk.

Stellingen behorende bij het proefschrift: *"Structuring Policy Issues"* van Ellie Roelofs

1. Een probleemstructureringsmethode beïnvloedt vooral de cognitieve kenmerken van een beleidskwestie en heeft veel minder effect op de sociaal-politieke en normatieve kenmerken ervan.

2. Werken met een probleemstructureringsmethode hindert beleidsmakers aanvankelijk in hun ideeënrijkheid maar na verloop van tijd is het effect op aspectdifferentiatie in het beleidsvormingsproces positief, zij het in bescheiden mate.

3. Participatieve (beter bekend als interactieve) beleidsvormingstrajecten zijn uiteindelijk contraproductief wanneer politieke - en ambtelijke besluitvormers de betrokken belangen onvoldoende wegen, niet oprecht luisteren en weinig begrip tonen voor de positie van de betrokken partijen.

4. Hoewel participatieve beleidsvorming veel belangstelling geniet is zij allerminst wijdverbreid in de beleidspraktijk, dit in tegenstelling tot projecten rond vraaggericht organiseren. Cocoonen is ook in overheidsland een populaire, immers een veilige, gedragskeuze.

5. Spelsimulaties bieden mensen een leer- experimenteeromgeving. Ze zijn levensecht omdat mensen in hun handelen altijd geleid worden door hun persoonlijkheid, vaardigheden en sociale status in de groep.

6. Win-win situaties zijn niet zelden een eufemistische aanduiding voor lose-less situaties.

7. De stelling dat de afwezigheid van een (substantieel) verband tussen variabelen in wetenschappelijk onderzoek ook een resultaat is, wordt door wetenschappers zelf vaak alleen maar met de mond beleden.

8. Ook in de wetenschap is de waarheid, indien al aanwezig, vergankelijk.

9. De Katholieke Universiteit Brabant heeft een opportunistische kijk op haar katholiciteit als ze jarenlang mensen in ondersteunende functies via Melkertbanen werk maar geen arbeids-contract aanbiedt.

10. *"Es ist gleichwohl möglich, ...mit dem Herzen zu denken."* Rainer Maria Rilke (1998)

UITNODIGING

Structuring Policy Issues

Testing a Mapping technique with Gaming/Simulation

20 december 2000 om 11.00 uur verdedig ik mijn proefschrift "Structuring Policy Issues: testing a mapping technique with gaming/simulation in de aula van de Katholieke Universiteit Brabant, Warandelaan 2 te Tilburg.

Graag nodig ik u uit voor de verdediging en de aansluitende receptie.

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